

Physical, Direct Interactions of Humans with Wild Gorillas and Chimpanzees: Research Studies of Primate Behaviors in Their Natural Habitats

Contents

Articles

Private Evolution: Modern Research on Wild Primates.	1
Louis Leakey	1
Jane Goodall	14
Dian Fossey	22
Gorilla	28
Chimpanzee	36
Primate	49
Rwanda	69
Congo	88
Africa	91

References


Article Sources and Contributors	113
Image Sources, Licenses and Contributors	117

Article Licenses

License	120
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Private Evolution: Modern Research on Wild Primates.

Louis Leakey

Louis Leakey	
	
Louis Leakey examining skulls from Olduvai Gorge	
Born	August 7, 1903 Kenya
Died	October 1, 1972 (aged 69) London, United Kingdom
Citizenship	Kenyan, British
Nationality	Kenyan
Fields	archaeologist, Paleoanthropologist, Paleontology
Known for	Pioneering the study of human evolution, human evolutionary development in Africa
Religious stance	Anglican

Louis Seymour Bazett Leakey (L.S.B. Leakey) (August 7, 1903 – October 1, 1972) was a Kenyan archaeologist and naturalist whose work was important in establishing human evolutionary development in Africa. He also played a major role in creating organizations for future research in Africa and for protecting wildlife there. Having been a prime mover in establishing a tradition of palaeoanthropological inquiry, he was able to motivate the next generation to continue it, notably within his own family, many of whom also became prominent. Louis participated in national events of British East Africa and then Kenya in critical if less spectacular ways.

In natural philosophy he asserted Charles Darwin's theory of evolution unswervingly and set about to prove Darwin's hypothesis that man arose in Africa; he was also a devout Christian.^[1]

White African

"When I think back ... of the serval cat and a baboon that I had as pets in my childhood days—and that eventually I had to house in large cages—it makes me sad. It makes me sadder still, however, and also very angry, when I think of the innumerable adult animals and birds deliberately caught and locked up for the so-called 'pleasure' and 'education' of thoughtless human beings. ... surely there are today so many first-class films ... that the cruelty of keeping wild creatures in zoos should no longer be tolerated."

From L.S.B. Leakey, *By the Evidence*, Chapter 4.

Louis' parents, Harry and Mary Bazett Leakey (called May by her friends), were British missionaries of the Christian faith in then British East Africa, now Kenya.^[2] Harry had taken a previously established post of the Church Mission Society among the Kikuyu at Kabete. The station was at that time a hut and two tents in the highlands north of Nairobi. Louis' earliest home had an earthen floor, a leaky thatched roof, rodents and insects, and no heating system except for charcoal braziers. The facilities improved but slowly. The mission, a center of activity, set up a clinic in one of the tents, and later a girl's school for African women. Harry was working on a translation of the Bible into the Kenyan language Kikuyu.

Louis had a younger brother, Douglas, and two older sisters, Gladys Leakey Beecher and Julia Leakey Barham. Louis' primary family came to contain also Miss Oakes (a governess) Miss Higgenbotham (another missionary), and Mariamu (a Kikuyu nurse). Inevitably, Louis grew up, played, and learned to hunt with Africans. He also learned to walk with the distinctive gait of the Kikuyu and speak their language fluently, as did his siblings. He was initiated into the Kikuyu ethnic group, an event of which he never spoke, as he was sworn to secrecy.^[3]

Louis requested and was given permission to build and move into a hut, Kikuyu style, at the end of the garden. It was home to his personal collection of natural objects, such as birds' eggs and skulls. All the children developed a keen interest in and appreciation of the pristine natural surroundings in which they found themselves. They raised baby animals, later turning them over to zoos. Louis read a gift book, *Days Before History*, by H. R. Hall (1907), a juvenile fictional work illustrating the prehistory of Britain. He began to collect tools and was further encouraged in this activity by a role model, Arthur Loveridge, first curator (1914) of the Natural History Museum in Nairobi, predecessor of the Coryndon Museum. This interest may have predisposed him toward a career in archaeology.^[4]

Neither Harry nor May were of strong constitution. From 1904-1906 the entire family lived at May's mother's house in Reading, Berkshire, England, while Harry recovered from neurasthenia, and again in 1911-1913, while May recovered from general frailty and exhaustion. During the latter stay, Harry bought a house in Boscombe.^[5]



The formative years

His father's example

In Britain the Leakey children attended elementary school; in Africa they had a tutor, Miss Laing. They sat out World War I in Africa. When the sea lanes opened again, they returned to Boscombe, where Louis was sent to Weymouth Secondary School, a private boy's school in 1919 at age 16. In three years there he did not do well, and complained of rules he considered an infringement on his freedom and hazing by the other boys. Advised by one teacher to seek employment in a bank, he appealed to his English teacher, Mr. Tunstall, who started him in the application process to Cambridge. His excellent scores on the entrance exams won him a scholarship.

Louis matriculated at his father's alma mater, Cambridge University, in 1922, intent on becoming a missionary to British East Africa.

For the rest of his life he would dine out on the story of his finals. When he had arrived in Britain he had notified the register of people with a knowledge of rare languages that he was fluent in Swahili. When he came to his finals he asked to be examined in this and after some hesitation the authorities agreed. Then one day he received two letters. One instructed him to report at a certain time and place for a viva-voce examination in Swahili. The other asked if, at the same time and place, he would examine a candidate in Swahili.

His son says:^[6]

"Louis was in his early twenties when he decided to pursue a fossil-hunting career. Until then, he had intended to follow his father's example and be a Christian missionary in Kenya."

He preached Christian zeal to his fellow students and otherwise impressed Cambridge society with behavior that was considered eccentric.^[7] He was also an evolutionist and befriended some future naturalists.^[8] In 1923 his usual zeal led him into a severe concussion in a game of Rugby union. He was relieved of his academic duties. Rest and the outdoors were prescribed.

Diversion from missionary work

In that year a position became available that pushed all thought of rest into the background. In 1922 the British had been awarded German East Africa as part of the settlement of World War I, subsequently applying the name Tanganyika. Within its territory the Germans had discovered a site rich in dinosaur fossils, Tendaguru. Louis was told by C. W. Hobley, a friend of the family, that the British Museum of Natural History was going to send a fossil-hunting expedition to it. Louis applied and was hired to locate the site and manage the administrative details. In 1924 the party under William E. Cutler departed for Africa. They never found a complete dinosaur skeleton. Louis was recalled from the site by Cambridge in 1925, while Cutler contracted blackwater fever and died nine months later.

This critical experience changed Louis' career decision. Switching majors to anthropology, he found a new mentor in Alfred Cort Haddon, head of the department. In 1926 he graduated from there with "double firsts", or high honors, in anthropology and archaeology. He had used some of his preexisting qualifications; for example, Kikuyu was offered and accepted as the second modern language in which he was required to be proficient, even though no one there could test him on it. The university accepted an affidavit from a Kikuyu chief signed with a thumbprint.

From 1925 on Louis lectured and wrote on African archaeological and palaeontological topics. On graduation he was such a respected figure that Cambridge sent him to East Africa to study prehistoric African humans. He excavated dozens of sites, undertaking for the first time a systematic study of the artifacts. Some of his culture names are still in use; for example, Elmenteitan.^[9]

Research fellow



St. John's College, Cambridge.

In 1927 Louis received a visit at a site called Gamble's Cave, near Lake Elmenteita, by two young ladies on a holiday, one of whom was Henrietta Wilfreda "Frida" Avern.^[10] She had done some course work in archaeology. Louis and she talked the entire night. They continued the relationship on his return to Cambridge and in 1928 they were married and set off together for Elmenteita. At that time he discovered the Acheulean site of Kariandusi, which he excavated in 1928, after collecting a team of interested associates.^[11]

On the strength of his work there he obtained a research fellowship at St. John's College and returned to Cambridge in 1929 to do post-graduate work and to classify and prepare the finds from Elmenteita. His patron and mentor at Cambridge was now Arthur Keith. While cleaning two skeletons he had found he noticed a similarity to one found in Olduvai Gorge by Professor Hans Reck, a German national, whom Louis had met in 1925 in Germany while on business for Keith.

The geology of Olduvai was known and in 1913 Reck had extricated a skeleton from Bed II in the gorge wall. He argued that it must have the date of the bed, which was believed to 600,000 years, in the mid-Pleistocene. The public was not ready for this news. Man must have evolved or have been created long after then, was the general belief. Reck became involved in a media uproar. He was barred from going back to settle the question by the war and then the terms of the transfer of Tanganyika from Germany to Britain.^[12] In 1929 Louis visited Berlin to talk to the now skeptical Reck. Noting an Acheulean tool in Reck's collection of artifacts from Olduvai, he bet Reck he could find ancient stone tools at Olduvai within 24 hours.^[13]



Olduvai Gorge.

Meanwhile Frida worked on illustrations for *The Stone Age Culture of Kenya Colony*. Louis was given the PhD in 1930 at age 27. His first child, a daughter, Priscilla Muthoni Leakey, was born in 1931. His headaches and epilepsy returned in the excitement and he was prescribed Luminal, which he took the rest of his life.

Reversals of fortune

The Defense of Reck

In November, 1931, Louis led an expedition to Olduvai, including Reck,^[14] whom he allowed to enter the gorge first. Louis did find Acheulean tools within the first 24 hours, costing Reck ten pounds on the bet. They verified the provenance of the 1913 find, now Olduvai Man. Non-humanoid fossils and tools were extracted from the ground in large numbers. Frida delayed joining him and was less enthusiastic about him on behalf of Priscilla. She did arrive eventually, however, and Louis put her to work. Frida's site became FLK, for Frida Leakey's karongo ("gully").

Back in Cambridge, the skeptics were not impressed. To find supporting evidence of the antiquity of Reck's Olduvai Man, Louis returned to Africa, excavating at Kanam and Kanjera. He easily found more fossils, which he named *Homo kanamensis*.^[15] While he was gone, the opposition worked up some "evidence" of the intrusion of Olduvai Man into an earlier layer, evidence that seemed convincing at the time, but is missing and unverifiable now. On his return Louis' finds were carefully examined by a committee of 26 scientists and were tentatively accepted as valid.

Scandal

With Frida's dowry money, the Leakeys bought a large brick house in Girton near Cambridge, which they named "the Close." She suffered from morning sickness most of the time and was unable to work on the illustrations for Louis' second book, *Adam's Ancestors*. At a dinner party given in his honor after a lecture of his at the Royal Anthropological Institute, Gertrude Caton-Thompson introduced him to her own illustrator, the twenty-year-old Mary Nicol.

Louis convinced Mary to take on the illustration of his book. A few months later companionship turned to romance. Colin Leakey was born in December, 1933, and in January, 1934, Louis asked Frida for a divorce. She would not sue for divorce until 1936.^[16]

A panel at Cambridge investigated his morals. Grants dried up, but his mother raised enough money for another expedition to Olduvai, Kanam and Kanjera, the latter two on the Winam Gulf.^[17] His previous work there was questioned by P. G. H. Boswell,^[18] whom he invited to verify the sites for himself. Arriving at Kanam and Kanjera in 1935, they found that the iron markers Louis had used to mark the sites had been removed by the Luo tribe for use as harpoons and the sites could not now be located. To make matters worse, all the photos Louis took were ruined by a light leak in the camera. After an irritating and fruitless two-month search, Boswell left for England, promising, as Louis understood it, not to publish a word until Louis returned.

Boswell immediately set out to publish as many words as he was able, beginning with an article in *Nature* dated March 9, 1935, destroying Reck's and Louis' dates of the fossils and questioning Louis' competence. Louis on his return accused Boswell of treachery, but Boswell now had public opinion on his side. Louis was not only forced to retract the accusation but also to recant his support of Reck.^[19] Louis was through at Cambridge. Even his mentors turned on him.

On the road in Africa

Meeting Mary in Africa, he proceeded to Olduvai with a small party. Mary joined him under a stigma but her skill and competence eventually won over the other participants. Louis' parents continued to urge him to return to Frida, and would pay for everyone in the party, but not Mary. Louis and his associates did the groundwork for future excavation at Olduvai, uncovering dozens of sites for a broad sampling, as was his method. They were named after the excavator: SHK (Sam Howard's karongo), BK (Peter Bell's), SWK (Sam White's), MNK (Mary Nicol's). Louis and Mary conducted a temporary clinic for the Maasai, made preliminary investigations of Laetoli, and ended by studying the rock paintings at the Kiseshe/Cheke region.^[20]

The Village of Nasty

Louis and Mary returned to England in 1935 without positions or any place to stay except Mary's mother's apartment. They soon leased Steen Cottage in Great Munden^[21] and lived without heat, electricity, or plumbing, fetching water from a well, huddling before a fireplace and writing by oil lantern. They lived happily in poverty for eighteen months at this low point of their fortunes, visited at first only by Mary's relatives. Louis gardened for subsistence and exercise and improved the house and grounds. He appealed at last to the Royal Society, who relented with a small grant to continue work on his collection.

Our Man in British East Africa

The Return of the Native Son

Finally, Frida released Louis and he and Mary were married on Christmas Eve, 1936, in a civil ceremony at the registry office of Ware. The witness, Peter Koinange, the son of a Kikuyu chief, was in Britain doing postgraduate studies at St. John's. Louis got some royalties and advances on books, and snagged the Munro lectures at Edinburgh University for 1936.^[22]

Louis had already involved himself in Kikuyu tribal affairs in 1928, taking a stand against female genital cutting. He got into a shouting match in Kikuyu one evening with Jomo Kenyatta, who was lecturing on the topic. R. Copeland at Oxford recommended he apply to the Rhodes Trust for a grant to write a study of the Kikuyu and it was given late in 1936 along with a salary for two years. In January 1937 the Leakeys shook the dust off their feet and travelled to Kenya. Colin would not see his father for 20 years.

Louis returned to Kiambaa near Nairobi and persuaded Senior Chief Koinange, who designated a committee of chiefs, to help him describe the Kikuyu the way they had been. Mary excavated at Waterfall Cave.^[23] She fell ill with double pneumonia and lay at death's door for two weeks in the hospital in Nairobi, during which time her mother was sent for. Contrary to expectation she recovered and began another excavation at Hyrax Hill and then Ngorongoro River Cave. Louis got an extension of his grant, which he used partially for fossil-hunting. Leakey discoveries began to appear in the newspapers again.

Tensions between the Kikuyu and the settlers increased alarmingly. Louis jumped into the fray as an exponent of the middle ground. In *Kenya: Contrasts and Problems*, he angered the settlers by proclaiming Kenya could never be a "white man's country."

The fossil police

The government offered Louis work as a policeman in intelligence, which he could not afford to refuse. He traveled the country as a pedlar, reporting on the talk. When Britain went to war in September, 1939, the Kenyan government drafted Louis into its African intelligence service.^[24] Apart from some bumbling around, during which he and some settlers stalked each other as possible saboteurs of the Sagana Railway Bridge,^[25] his first task was to supply and arm Ethiopian guerrillas against the Italian invaders of their country. He created a clandestine network using his childhood friends among the Kikuyu. They also hunted fossils on the sly.

Louis conducted interrogations, analyzed handwriting, wrote radio broadcasts and took on regular police investigations. He loved a good mystery of any sort. The white leadership of the King's African Rifles used him extensively to clear up many cultural mysteries; for example, he helped an officer remove a curse he had inadvertently put on his men.^[26]

Mary continued to find and excavate sites. Jonathan Leakey was born in 1940. She worked in the Coryndon Memorial Museum (later called the National Museums of Kenya) where Louis joined her as an unpaid honorary curator in 1941. Their life was a menage of police work and archaeology. They investigated Rusinga Island and Olorgesailie. At the latter site they were assisted by a team of Italian experts recruited from the prisoners of war and paroled for the purpose.^[27]

In 1942 the Italian menace ended, but the Japanese began to reconnoiter with a view toward landing in force. Louis found himself in counter-intelligence work, which he performed with zest and imagination. Deborah was born, but died at three months. They lived in a rundown and bug infested Nairobi home, provided by the museum. Jonathan was attacked by army ants in his crib.^[28]

The turn of the tide

In 1944 Richard Leakey was born. In 1945 the family's income from police work all but vanished. By now Louis was getting plenty of job offers but he chose to stay on in Kenya as Curator of the Coryndon Museum, with an annual salary and a house, but more importantly, to continue palaeoanthropological research.

In January, 1947, Louis conducted the first Pan-African Congress of Prehistory at Nairobi. Sixty scientists from 26 countries attended, delivering papers and visiting the Leakey sites. The conference restored Louis to the scientific fold and made him a major figure in it. With the money that now poured in Louis undertook the famous expeditions of 1948 and beyond at Rusinga Island in Lake Victoria, where Mary discovered the most complete Proconsul fossil up to that time.

Charles Boise donated money for a boat to be used for transport on Lake Victoria, "The Miocene Lady." Its famous skipper, Hassan Salimu, was later to deliver → Jane Goodall to Gombe. Philip Leakey was born in 1949. In 1950, Louis was awarded an honorary doctorate by Oxford University.

Kenyan affairs

"... I sought a personal interview with the governor, hoping to make him appreciate that it was no longer possible to continue along the lines of the old colonial regime. ... Colonial governors and senior civil servants are not easy people to argue with; and, of course, I was not popular, because of my criticism of the colonial service ... Had it been possible to make the government open its eyes to the realities of the situation, I believe that the whole miserable episode of what is frequently spoken of as 'the Mau Mau rebellion' need never have taken place."

From L.S.B. Leakey, *By the Evidence*, Chapter 18.

While the Leakeys were at Lake Victoria, the Kikuyu struck at the European settlers of the Kenyan highlands, who seemed to have the upper hand and were insisting on a "white" government of a "white" Africa. Approximately 1 million Kikuyu were being harassed by about 32,000 settlers. In 1949 the Kikuyu formed a secret society, the Mau Mau, which attacked settlers and especially loyalist Kikuyu.

Louis had attempted to warn Sir Philip Mitchell, governor of the colony, that nocturnal meetings and forced oaths were not Kikuyu customs and foreboded violence, but was ignored. Now he found himself pulled away from anthropology to investigate the Mau Mau. During this period his life was threatened and a reward placed on his head. The Leakeys began to pack pistols, termed "European National Dress." The government placed him under 24-hour guard.

In 1952, after a massacre of loyal chiefs, the government arrested Jomo Kenyatta, president of the Kenya African Union. Louis was summoned to be a court interpreter, but withdrew after an accusation of mistranslation because of prejudice against the defendant. He returned on request to translate documents only. Because of lack of evidence linking Kenyatta to the Mau Mau, although convicted, he did not receive the death penalty, but was sentenced to several years of hard labor and banned from Kenya.

The government brought in British troops and formed a home guard of 20,000 Kikuyu. During this time Louis played a difficult and contradictory role. He sided with the settlers, serving as their spokesman and intelligence officer, helping to ferret out bands of guerrillas. On the other hand he continued to advocate for the Kikuyu in his book, *Defeating Mau Mau* and numerous talks and articles. He recommended a multi-racial government, land reform in the highlands, a wage hike for the Kikuyu, and many other reforms, most of which were eventually adopted.

The British realized the rebellion was being directed from urban centers, instituted military law and rounded up the committees. Following Louis' suggestion, thousands of Kikuyu were placed in re-education camps and resettled in new villages. The rebellion continued from bases under Mt. Kenya until 1956, when, deprived of its leadership and supplies, it had to disperse. The state of emergency lasted until 1960. In 1963 Kenya became independent, with Jomo Kenyatta as prime minister.^[29]

Palaeoanthropologist par excellence

Vindication at Olduvai

"We know from the study of evolution that, again and again, various branches of animal stock have become over-specialized, and that over-specialization has led to their extinction. Present-day *Homo sapiens* is in many physical respects still very unspecialized— ... But in one thing man, as we know him today, is over-specialized. His brain power is very over-specialized compared to the rest of his physical make-up, and it may well be that this over-specialization will lead, just as surely, to his extinction. ... if we are to control our future, we must first understand the past better."

From L.S.B. Leakey, *Adam's Ancestors*, Fourth Edition, final page.

Louis and Mary spent all the time they could at Olduvai, starting in 1951. So far they had discovered only tools. A trial trench in Bed II at BK in 1951 was followed by a more extensive excavation in 1952. They found what Louis termed an Olduwan "slaughter-house", an ancient bog where animals had been trapped and butchered. Louis was so carried away that he worked without his hat and his hair was bleached white from the sun. They stopped in 1953.

In 1955 they excavated again with Jean Brown. She related that he preferred to be called Louis, was absent-minded, once had everyone looking for spectacles that were around his neck, wore pants with the buttons off and shoes with holes in them, charged about everywhere and once collapsed unconscious. He was completely happy.^[30]

In 1959 they decided to excavate Bed I. While Louis was sick in camp, Mary discovered the fossilized skull OH 5 at FLK, which Mary called "Our Man", and became "Dear Boy" and "Zinj." The question was whether it was a previous genus discovered by Robert Broom, *Paranthropus*, which Broom had taken not to be in the human line, or a different one, in it. Louis opted for Zinj, a decision opposed by Wilfrid Le Gros Clark, but one which attracted the attention of Melville Bell Grosvenor, president of the National Geographic Society. That contact resulted in an article in *National Geographic*^[31] and a hefty grant to continue work at Olduvai.

Also in 1960 Jack Evernden and Garniss Curtis, young geophysicists, dated Bed I to 1.75 mya. The world was stunned. Zinj was far older than anyone had imagined. Scientists swarmed to Africa. Reck and Louis were completely vindicated, too late for Reck, who had died in 1937. Louis had proved Darwin right.^[32]

The Leakey circus

In 1960, unable to leave the museum except on weekends, Louis appointed Mary director of excavation at Olduvai. She brought in a staff of Kamba tribesmen, instead of Kikuyu, who, she felt, took advantage of Louis. The first, Muteva Musomba, had kept her children's ponies. He recruited Kamoya Kimeu among others. Mary set up Camp 5 under Jonathan's direction. He was 19. From then on she had her own staff and associates.

Mary picked and sieved at the site from early morning dressed in old clothes, chain smoking cigarettes, always surrounded by her Dalmatian dogs. She and Louis communicated by radio. On weekends he drove non-stop at high speed the 357 miles between Olduvai and Nairobi. The teen-age boys, Richard and Philip, were on site holidays and vacations. Louis invited them and Irven DeVore to eat a raw rat so that he could compare the result to some Hominid coprolites. He said to DeVore, "My dear boy, let me make you famous." DeVore and the boys demurred.^[33]

Their home in Nairobi was a circus, figuratively speaking, when they were there. Dinner guests were frequent. Important guests stayed for weeks if they could stand it. They shared the quarters and the dinner table with the Dalmatians, hyraxes, a monkey, a civet cat, an African eagle owl, tropical fish, snakes, such as vipers, and a python. The extended families of twenty African staff lived in cinderblock huts in the yard. Mary had switched to cigars and the ashes often fell into the food. Both Louis and Mary cooked. Louis never stopped talking; his stories were endless.^[34] He literally ran through the day, making long lists of things to be done, which he never completed. He drove recklessly through the streets of Nairobi, often reading and writing as he drove.

Floruit

Jonathan achieved some brief fame before he quit palaeoanthropology altogether. He started his own site, "Jonny's site" in the Leakey lingo, FLK-NN. There he discovered two skull fragments without the Australopithecine sagittal crest, which Mary connected with Broom's and Robinson's Telanthropus. The problem with it was its contemporaneity with Zinj. Mailed photographs, Le Gros Clark retorted casually "Shades of Piltdown." Louis cabled him immediately and had some strong words at this suggestion of his incompetence. Clark apologized.^[35]

Not long after in 1960 Louis, his son Philip and Ray Pickering discovered a fossil he termed "Chellean Man", as it was in context with Olduvai tools, the first such find. After reconstruction Louis and Mary called it "Pinhead." It was subsequently included with *Homo erectus* and was in fact contemporaneous with *Paranthropus*, which on that account cannot have been in the human line. For many years Louis believed *erectus* was the user of the tools and *Australopithecus* was not, (It is now conceded that both Hominids used them).

In 1961 Louis got a salary as well as a grant from National Geographic and turned over the acting directorship of Coryndon to a subordinate. He created the Centre for Prehistory and Paleontology on the same grounds, moved his collections to it, and appointed himself director. This was his new operations center. He opened another excavation at Fort Ternan on Lake Victoria. Shortly after, Heselon discovered *Kenyapithecus wickeri*, the species name from the owner of the property, which Louis promptly celebrated with George Gaylord Simpson, who happened to be present, aboard the *Miocene Lady* with Leakey Safari Specials, a drink made of condensed milk and cognac.

In 1962 Louis was visiting Olduvai when Ndibo Mbuika discovered the first tooth of *Homo habilis* at MNK. Louis and Mary thought it was female and named her Cinderella, or Cindy. Phillip Tobias identified Jonny's Child with it and Raymond Dart came up with the name *Homo habilis* at Louis' request, which Tobias translated as "handyman."^[36] It was seen as intermediary between gracile *Australopithecus* and *Homo*.^[37]

Leakey's Angels

One of Louis's greatest legacies stems from his role in fostering field research of primates in their natural habitats, which he understood as key to unraveling the mysteries of human evolution. He personally chose three female researchers, → Jane Goodall, → Dian Fossey, and Birute Galdikas, who were later dubbed 'Leakey's Angels' and each went on to become important scholars in the field of primatology.

The last years

Kenya became independent at noon on December 12, 1963, with Jomo Kenyatta as the first prime minister. The settlers were already leaving the country in large numbers. Kenyatta saw that he had to act swiftly to prevent a descent into chaos. He took a conciliatory view. There were a few deportations, but no reprisals. Louis had felt considerable trepidation about the future of palaeoanthropology in Kenya. A meeting was arranged between him and Jomo at the suggestion of the last colonial governor, Malcom MacDonald. He was introduced by his old friend, Peter Koinange. They spoke in Kikuyu. The meeting ended with an embrace and reassurances.^[38]

During his final years Louis became famous as a lecturer in the United States and United Kingdom. He brought audiences cheering to their feet. He did not personally excavate any longer, as he was crippled with arthritis, for which he had a hip replacement in 1968. He raised funds and directed his family and associates. In Kenya he was an indispensable facilitator for the hundreds of scientists then exploring the East African Rift system for fossils. Without his say-so, permits could not be obtained and access to museum collections was denied. Once he gave permission, his advice was invaluable.

In 1963 he helped Ruth De Ette get started at a site in the Calico Hills of the Mojave Desert in California. The date then accepted for the arrival of humans in the Americas was about 12,000 BCE. On the basis of the time required for the evolution and distribution of native American languages, Louis hypothesized that the arrival must have been thousands of years previously. He encouraged Ruth to view the apparent artifacts she was finding as older than

100,000 years.

Mary did not share his visionary view. She was increasingly disrespectful, viewing him as incompetent, from 1963 on. The old intimacy was gone. Her professional opposition began over Calico Man. Under the rationale of trying to stop Louis from making a mistake that would tarnish his reputation, she persuaded the National Geographic Society to refrain from publishing Calico and pull funding from the project, but Louis found other means. On March 26, 1968, Alan and Helen O'Brien of Newport Beach, California, and some prominent Californians formed the Leakey Foundation. When Louis stayed with them when he was in California, the O'Briens noticed that he was very much underpaid on the lecture circuit. From then on Louis worked with them in fund-raising.

Mary's opposition soon turned into a major schism in the palaeoanthropological village. For example, in 1968 Louis refused an honorary doctorate from the University of Witwatersrand in Johannesburg, primarily because of apartheid in South Africa. Mary accepted one. Now it was Louis' turn to be concerned about her reputation. The two still cared about each other, but were apart and conducted different professional lives.^[39]

In the last few years Louis' health began to fail more seriously. He had his first heart attacks and spent six months in the hospital. An empathy over health brought him and → Dian Fossey together for a brief romance, which she broke off. Richard began to assume more and more of his father's responsibilities, which Louis resisted, but in the end was forced to accept. Everything bad seemed to happen to him in a run of unfortunate luck: he had more heart problems, he was swarmed by bees and nearly killed, he had a stroke, he was involved in controversy over Calico man, and he had to brook Mary's opposition. One good thing that happened is that he found increasing support and comfort in his friend, Vanne Goodall (mother of → Jane Goodall), whose London apartment Louis visited when he could.^[40]

Death and legacy

Passing

On October 1, 1972, Louis was stricken with a heart attack in Vanne Goodall's apartment in London. Vanne sat up all night with him in St. Stephen's Hospital and left at 9:00 a.m and then 30 minutes following he passed at the age of 69.

Mary wanted to cremate Louis and fly the ashes back to Nairobi. Richard intervened. As Louis was a Kikuyu, he ought to be buried in Kikuyuland. He was flown home and interred at Limuru near the graves of his parents.

In denial, the family did not face the question of a memorial marker for a year. When Richard went to place a stone on the grave he found one already there, courtesy of Rosalie Osborn. The inscription was signed with the letters, *ILYFA*, "I'll love you forever always", which Rosalie used to place on her letters to him. Richard left it in place.^[41]

Prominent organizations

- **1958.** Louis founded the Tigoni Primate research Center with Cynthia Booth on her farm north of Nairobi. Later it was the National Primate Research Center, currently the Institute of Primate Research, now in Nairobi. As the Tigoni center, it funded Leakey's Angels.
 - **1961.** Louis created the Centre for Prehistory and Paleontology on the same grounds as Coryndon Museum, appointing himself director.
 - **1968.** Louis assisted with the founding of The Leakey Foundation^[42], to ensure the legacy of his life's work in the study of human origins. The Leakey Foundation exists today as the number one funder of human origins research in the United States.
-

Prominent family members

Louis Leakey was married to Mary Leakey, who made the noteworthy discovery of fossil footprints at Laetoli. Found preserved in volcanic ash in Tanzania, they are the earliest record of bipedal gait.

He is also the father of paleoanthropologist Richard Leakey and the botanist Colin Leakey. Louis' cousin, Nigel Gray Leakey, was a recipient of the Victoria Cross during World War II.

Books by Louis Leakey

Louis's books are listed below.^[43] The gaps between books are filled by too many articles to list. It was Louis who began the Leakey tradition of publishing in *Nature*.

First Publication Date	Title	+
1931	<i>The Stone Age Culture of Kenya Colony</i>	Written in 1929. Illustrated by Frida Leakey.
1934	<i>Adam's Ancestors: The Evolution of Man and His Culture</i>	Multiple editions with rewrites, the 4th in 1955. Illustrated by Mary Leakey. Book reviews: ^[44]
1935	<i>The Stone Age races of Kenya</i>	Proposes Homo kanamensis.
1936	<i>Kenya: Contrasts and Problems</i>	Written in 1935.
1936	<i>Stone Age Africa: an Outline of Prehistory in Africa</i>	Ten chapters consisting of the ten Munro Lectures delivered in 1936 by Louis to Edinburgh University and intended by him as a textbook. Illustrated by Mary.
1937	<i>White African: an Early Autobiography</i>	Louis described it as a "pot-boiler" written in 1936 for Hodder & Stoughton.
1951	<i>The Miocene Hominoidea of East Africa</i>	With Wilfrid Le Gros Clark. Volume I of the series <i>Fossil Mammals of Africa</i> published by the British Museum of Natural History.
1951	<i>Olduvai Gorge: A Report on the Evolution of the Hand-Axe Culture in Beds I-IV</i>	Started in 1935. Names the Olduvan Culture.
1952	<i>Mau Mau and the Kikuyu</i>	Online at ^[45] Quaestia.
1953	<i>Animals in Africa</i>	Photographs by Ylla.
1954	<i>Defeating Mau Mau</i>	With Peter Schmidt. Online at ^[46] Quaestia.
1965	<i>Olduvai Gorge: A Preliminary Report on the Geology and Fauna, 1951-61</i>	Volume 1. ^[47]
1969	<i>Unveiling Man's Origins</i>	With Vanne Morris Goodall.
1969	<i>Animals of East Africa: The Wild realm</i>	
1970	<i>Olduvai Gorge, 1965-1967</i>	
1974	<i>By the Evidence: Memoirs, 1932-1951</i>	Written in 1972 and published posthumously. Louis finished writing on the day before his death.
1977	<i>The Southern Kikuyu before 1903</i>	Published posthumously. The manuscript remained in Louis' safe for decades for lack of a publisher. It was 3 volumes. He refused to follow editorial advice and shorten it.

References

- Virginia Morell, *Ancestral Passions: The Leakey Family and the Quest for Humankind's Beginnings*, Copyright 1995.
- Mary Bowman-Kruhm, *The Leakeys: a Biography*, Copyright 2005, Greenwood Press, ISBN 0-313-32985-0. Online preview found at^[48] in Google Books.

See also

- Calico Early Man Site
- Leakey family
- List of fossil sites (*with link directory*)
- List of hominina (hominid) fossils (*with images*)

Frida Avern → Louis Leakey Mary Nicol

Colin Leakey Meave Epps Richard Leakey Margaret Cropper Jonathan Philip Leakey

Louise Emmanuel
Leakey de
Merode

External links

- LeakeyFoundation.org^[42] - The Leakey Foundation: a non-profit organization committed to increasing scientific knowledge, education, and public understanding of human origins, evolution, behavior and survival.
- TalkOrigins Archive – Louis Leakey^[49]
- Louis S. B. Leakey^[50], the leakey.com biography.
- *Louis Leakey*^[51], article by Brian M. Fagan in CD Groliers Encyclopedia.
- *Louis Seymour Bazett Leakey (1903-1972)*^[52]


References

- [1] Reported in *Ancestral Passions*, Chapter 3.
- [2] Harry: 1868-1940; Mary: ?-1948. Harry later became canon of the station and had a distinguished career. Louis reports in his memoirs, Chapter 6, that the Leakeys were of the Church of England, or Anglican
- [3] According to Blake Edgar in Louis Leakey's Legacy: Celebrating the Centennial of His Extraordinary Life and Finds (<http://www.leakeyfoundation.org/newsandevents/n3.jsp>) in AnthroQuest Online for Fall, 2003, Louis received the Kikuyu name Wakuruigi, "Son of the Sparrow Hawk." Harry also had a name, apparently not an initiation name, but rather descriptive: Giteru, "Big beard."
- [4] Canon Leakey also was a naturalist and must have been a significant model, as Louis wished originally to pattern his life after his father's. Canon Leakey was one of the original founders of the East Africa and Uganda Natural History Society, according to Louis' memoirs, Chapter 8
- [5] The facts for this section were gathered mainly from *Ancestral Passions*, Chapter 1, "Kabete", and from the "Publisher's Prologue" of the Harcourt Brace Jovanovich edition of *By the Evidence*.
- [6] Richard E. Leakey, *The Making of Mankind*, Chapter 1. The rest of the material comes from Morell, Chapter 2, "From Cambridge to Olduvai."
- [7] For the details of eccentricity, read Bowman-Kruhm, Chapter 2. They include, for example, demonstrating talking drums from the roof of a building at Cambridge.
- [8] Gregory Bateson, E. Barton Worthington
- [9] This Mesolithic culture is described in *The Elmenteitan* ([http://links.jstor.org/sici?sici=0043-8243\(198806\)20:1<57:TEAEFC>2.0.CO;2-U&size=LARGE](http://links.jstor.org/sici?sici=0043-8243(198806)20:1<57:TEAEFC>2.0.CO;2-U&size=LARGE)) by Peter Robertshaw in World Archaeology, Vol. 20, No. 1, Archaeology in Africa (Jun., 1988), pp. 57-69, of which the first page is displayed for free.
- [10] 1902-1993

- [11] Douglas Leakey, Donald MacInnes, Tom Powys Cobb, John D. Solomon, Elisabeth Kitson, Cecily Creasy, Penelope Jenkin. For a description and history of the site see Kariandusi Museum (<http://www.museums.or.ke/regkaria.html>) at the National Museums of Kenya web site.
- [12] For an account of the incident refer to *Hans Reck and the Discovery of O.H.I* (<http://www.calarts.edu/~shockley/oh1.html>) at the "Always Something New" site.
- [13] The source for this subsection is Morell, Chapter 3, "Laying Claim to the Earliest Man."
- [14] Arthur Tindell Hopwood, Donald MacInnes, Vivian Fuchs, Captain Hewlitt, Frances Kenrick, Frida, Reck, and a number of African assistants.
- [15] Read about these events in *Recent Research into Oldowan Hominin Activities at Kanjera South, Western Kenya* (<http://www.anthropology.emory.edu/FACULTY/ANTJK/pdf/Bishop'06?.pdf>), by L. C. Bishop et al., published in the *African Archaeological Review*.
- [16] This account is based on Morell, Chapter 4, "Louis and Mary."
- [17] The guest list is Peter Bell (zoologist), Sam White (surveyor), Peter Kent (geologist), Heselon Mukiri, Thairu Irumbi, Ndekei.
- [18] Head of the Department of Geology at the Imperial College of Science, London.
- [19] This account is based on Morell, Chapter 5, "Disaster at Kanam", supplemented with detail from Louis' account in *By the Evidence*, Chapter 2. Olduvai Man languished through World War II in a Berlin museum and then partially disappeared, but preservative applied to the bones took away any hope of an accurate C-14 date; however, neither can any evidence of intrusion be located. Kanjera Man is ancient, possibly *Homo habilis*; *Homo kanamensis* is an intrusion.
- [20] The initial chapters of *By the Evidence* and Morell, Chapter 6, "Olduvai's Bounty", describe the explorations on which these few sentences are based.
- [21] This settlement was in Hertfordshire and had an unusual, more ancient name, which Louis, with his sense of humor noted in his memoirs, Chapter 5, as "the village of Nasty." Nasty is a hamlet in Great Munden; however, Louis' mood reflects that of the population of Hertfordshire, which delights in assigning unusual village names.
- [22] This subsection depends on Morell, Chapter 7, "Consequences."
- [23] According to Louis' memoirs, Chapter 6, it was the chief who suggested she excavate. He knew artifacts were being washed from the cave. Louis and Mary had moved into a hut in his compound at his invitation.
- [24] Louis describes this authority in Chapter 8 of his Memoirs as "...the CID... Special Branch, Section 6, concerned with civil intelligence." The drafting authority was the "Kenya government" and there is no indication in the Memoirs that the service was more directly British; in fact, he refers to "my counterpart in military intelligence." However, Louis would not be revealing everything he knew. Morell portrays him as having been in police work before being drafted. She had personal access to the surviving Leakeys.
- [25] Memoirs Chapter 8
- [26] Memoirs, Chapter 9.
- [27] Memoirs Chapter 12
- [28] This section is based on Morell, Chapter 8, "Cloak-and-Dagger."
- [29] This subsection is based on Morell's chapter 11, "Louis and Kenyatta."
- [30] This Olduvai period, including Jean's description of Louis, is from Morell, Chapter 12, "Our Man."
- [31] September, 1960, *Finding the World's Earliest Man*.
- [32] The material on *Zinjanthropus* and the dating of Bed I is from Morell, Chapter 13, "Fame, Fortune and Zinj."
- [33] The anecdote about the rat is given in Morell, Chapter 14, Note 8.
- [34] This section is based on Morell, Chapter 5, "Mary's Dig." There was another side to the Leakey family, written about by Morell in Chapter 17, "Chimpanzees and Other Loves". Louis was a notorious womanizer. He was faithful neither to Frida nor to Mary. Mary tolerated this behavior well until his relationship with Rosalie Osborn, 1954/55, threatened to break up her marriage. The two fought constantly, upsetting the boys. After Richard nearly died in a fall from a horse, Louis broke with Rosalie for the sake of the boys. In 1960 Louis and Mary were especially close, which lasted until the arrival of Vanne Goodall.
- [35] Morell, Chapter 14, "Mary's Dig."
- [36] Morell Chapter 16, "The Human with Ability." Richard Leakey tells a different story about the name. See in the *Notes* section of *Homo habilis*.
- [37] These few paragraphs rely on Morell, Chapter 16, "The Human with Ability."
- [38] Morell, Chapter 19, "A Girl for the Gorillas."
- [39] Morell Chapter 23, "Mining Hominids at Olduvai."
- [40] These details and many more can be found in Morell, Chapters 27-30.
- [41] Morell Chapter 30, "An End and a Beginning."
- [42] <http://www.leakeyfoundation.org/>
- [43] Most of them have many publishers in many editions.
- [44] <http://links.jstor.org/sici?sici=0002-7294%28193507%2F09%292%3A37%3A3%3C510%3AAAAUOO%3E2.0.CO%3B2-1&size=LARGE>
- [45] Mau Mau and the Kikuyu (<http://www.questia.com/PM.qst?a=o&d=55014383>)
- [46] Defeating Mau Mau (<http://www.questia.com/PM.qst?a=o&d=5658080>)
- [47] The second volume, *Olduvai Gorge: the Cranium and Maxillary Dentition of Australopithecus (Zinjanthropus) boisei*, was written by Phillip Tobias. The third volume was written by Mary Leakey.

- [48] <http://books.google.com/books?id=6LmiKnyVAXgC&printsec=frontcover&dq>
 [49] <http://www.talkorigins.org/faqs/homs/lleakey.html>
 [50] http://www.leakey.com/louis_leakey.htm
 [51] <http://www.ntz.info/gen/n00334.html#id00496>
 [52] <http://www.kirjasto.sci.fi/leakey.htm>

Jane Goodall

Dame Jane Goodall	
	
Jane Goodall at Hong Kong University on 24 October 2004 with Mr. H	
Born	3 April 1934
Residence	England, Tanzania
Nationality	British
Fields	Biologist, Primatologist, Conservationist
Alma mater	University of Cambridge
Known for	Study of → chimpanzees, conservation
Notable awards	DBE (2004)
Religious stance	Christian

Dame Jane Goodall, DBE (born **Valerie Jane Morris Goodall** on 3 April 1934) is an English UN Messenger of Peace, primatologist, ethologist, and anthropologist. She is well-known for her 45-year study of → chimpanzee social and family interactions in Gombe Stream National Park, Tanzania, and for founding the Jane Goodall Institute.

Early life and education

Jane Goodall was born in London, England in 1934. As a child she was given a lifelike chimpanzee toy named Jubilee by her father. Goodall was not very interested in animals until her father brought her the stuffed animal. Today, the toy still sits on her dresser in London. After the divorce of her parents when Goodall was 12 years old, she moved with her mother to Bournemouth, England.

Goodall's interest in animals prompted notable anthropologist → Louis Leakey to hire her as his assistant and secretary. He invited her to accompany him and his wife, Mary Leakey, to dig at Olduvai Gorge in eastern Africa. He asked Goodall to study the chimpanzees of Gombe Stream National Park (then known as 'Gombe Stream Chimpanzee Reserve'). She arrived at Gombe accompanied by her mother in July 1960. Leakey arranged for her to return to the United Kingdom where she earned a doctorate in ethology from Darwin College, the University of Cambridge in 1964. Along with → Dian Fossey, famous for living with → gorillas, and Biruté Galdikas, who advanced studies in orangutans, Goodall was one of three women dubbed "Leakey's Angels".

Career in wild primate research

Goodall is best known for her study of → chimpanzee social and family life. She began studying the Kasakela chimpanzee community in Gombe Stream National Park, Tanzania in 1960.^[1] In 1977, Goodall established the Jane Goodall Institute (JGI), which supports the Gombe research, and she is a global leader in the effort to protect chimpanzees and their habitats. With nineteen offices around the world, the JGI is widely recognized for innovative, community-centered conservation and development programs in → Africa and a global youth program, Roots & Shoots, which currently has over 10,000 groups in over 100 countries. Today, Goodall devotes virtually all of her time to advocacy on behalf of chimpanzees and the environment, traveling nearly 300 days a year.^[2] Goodall is also a board member for the world's largest chimpanzee sanctuary outside of Africa, Save the Chimps in Fort Pierce, Florida.



Orphaned by poachers, young chimpanzees are raised by volunteers and researchers at the Tchimpounga Sanctuary (part of the Jane Goodall Institute) in the Republic of the Congo.

Goodall was instrumental in the study of social learning, primate cognition, thinking and culture in wild chimpanzees, their differentiation from the bonobo, and the inclusion of both chimpanzee species, and the → gorilla, as Hominids.

One of Goodall's major break-throughs in the field of primatology was the discovery of tool-making among chimpanzees during her study. Though many animals had been clearly observed using 'tools', previously, only humans were thought to make tools, and tool-making was considered the defining difference between humans and other animals. This discovery convinced several scientists to reconsider their definition of being human.^[3]

Goodall also set herself apart from the traditional conventions of the time by naming the animals in her studies of primates, instead of assigning each a number. Numbering was a nearly universal practice at the time, and thought to be important in the removal of one's self from the potential for emotional attachment to the subject being studied. Among those that Goodall named during her years in Gombe were:

- David Greybeard, a grey-chinned male who first warmed up to Goodall.^[4]
- Goliath, a friend of David Greybeard, originally the alpha male named for his bold nature.
- Mike, who through his cunning and improvisation displaced Goliath as the alpha male.
- Humphrey, a big, strong, bullying male.
- Gigi, a large, sterile female who delighted in being the "aunt" of any young chimps or humans.
- Mr. McGregor, a belligerent older male.
- Flo, a motherly, high-ranking female with a bulbous nose and ragged ears, and her children, Figan, Faben, Fifi, and Flint.^[5] ^[6]
- Frodo, Fifi's second eldest child, an aggressive male who would frequently attack Jane and who once killed and began to eat a human infant.^[7]

Jane Goodall's involvement in tropical forests and conservation has led her to be actively involved in a number of environmental issues, and to found the Roots & Shoots youth group. She has also endorsed the Forests Now Declaration, calling for new market based mechanisms to protect tropical forests. She is a patron of the Optimum

Population Trust.

Some primatologists have suggested flaws in Goodall's methodology which may call into question the validity of her observations. Goodall used unconventional practices in her study, for example, naming individuals instead of numbering them. At the time numbering was used to prevent emotional attachment and loss of objectivity. Many standard methods are aimed at helping observers to avoid interference and the use of feeding stations to attract Gombe chimpanzees is, in particular, thought by some to have altered normal foraging and feeding patterns as well as social relationships.^[8]

It has been suggested that higher levels of aggression and conflict with other chimpanzee groups in the area were a consequence of the feeding, which could have created the "wars" between chimpanzee social groups described by Goodall. Thus, some regard Goodall's observations as distortions of normal chimpanzee behavior.^[9] Goodall herself (on several occasions) acknowledged that feeding contributed to aggression within and between groups:

"I didn't see aggression to start with. There's no question that chimpanzees become more aggressive as a result of crowding, as a result of competition for food." (J. Goodall)

"It's very hard to look back with hindsight and say oh well I would have done it differently. If I had gone to Gombe and had access to information about the effect of feeding bananas on wild chimpanzees I wouldn't have done it". (J. Goodall)

However, Goodall has also said that the effect was limited to alteration of the intensity and not the nature of chimpanzee conflict and further that feeding was necessary for the study to be effective at all.

Some recent studies such as the study by Crickette Sanz in the Goulougo Triangle (Congo) or by Prof. Christophe Boesch in the Tai Forest (Ivory Coast) have not shown the aggression observed in the Gombe studies.^[10]

"So far, we haven't seen any abnormal levels of aggression. We've never seen chimps killing other chimps. We haven't seen highly elevated territorial disputes. If I had to guess, I wouldn't expect to see it". (C. Sanz)

"I have not seen this kind of killing in Tai Forest. This violence is not always present". (C. Boesch)

However, not all primatologists agree that the studies are flawed; for example, Jim Moore provides a critique of Margaret Powers' assertions^[11] and some studies of other chimpanzee groups have shown similar aggression to Gombe even in the absence of feeding.^[12]

Jane Goodall is an animal welfare activist and is the former president of Advocates for Animals, an organization based in Edinburgh, Scotland, that campaigns against the use of animals in medical research, zoos, farming and sport.

In May 2008, Goodall controversially described Edinburgh Zoo's new primate enclosure as a "wonderful facility" where monkeys are "are probably better off [than those] living in the wild in an area like Budongo, where one in six gets caught in a wire snare, and countries like Congo, where chimpanzees, monkeys and gorillas are shot for food commercially."^[13] This was in conflict with Advocates for Animals' position on captive animals, who stated "She's entitled to her opinion, but our position isn't going to change. We oppose the keeping of animals in captivity for entertainment."^[14] In June 2008 Goodall confirmed that she had resigned the presidency of the organisation which she had held since 1998, citing her busy schedule and explaining, "I just don't have time for them."^[15]



Goodall in 2009 with Lou Perrotti, who contributed to her book, *Hope for Animals and Their World*.

Honours

Jane Goodall has received many honors for her environmental and humanitarian work, as well as others. She was named a Dame Commander of the Order of the British Empire in a ceremony held in Buckingham Palace in 2004. In April 2002, Secretary-General Kofi Annan named Dr. Goodall a United Nations Messenger of Peace. Her other honors include the Tyler Prize for Environmental Achievement, the French Legion of Honor, Medal of Tanzania, Japan's prestigious Kyoto Prize, the Benjamin Franklin Medal in Life Science, the Gandhi-King Award for Nonviolence and the Spanish Premio Príncipe de Asturias. She is also a member of the advisory board of *BBC Wildlife* magazine.

In 2002, the Canadian city of Greater Sudbury, Ontario dedicated a walking trail, highlighting some of the city's efforts to rehabilitate environmental damage from the local mining industry, to Goodall. ^[16]

On 7 July 2007 Goodall presented at Live Earth.

In April 2008, Jane was awarded the Montana State University Medal for Global and Visionary Leadership.

Awards

- **1980:** Order of the Golden Ark, World Wildlife Award for Conservation
- **1984:** J. Paul Getty Wildlife Conservation Prize
- **1985:** Living Legacy Award from the International Women's League
- Society of the United States; Award for Humane Excellence, American Society for the Prevention of Cruelty to Animals
- **1987:** Ian Biggs' Prize
- **1989:** Encyclopaedia Britannica Award for Excellence on the Dissemination of Learning for the Benefit of Mankind; Anthropologist of the Year Award
- **1990:** The AMES Award, American Anthropologist Association; Whooping Crane Conservation Award, Conoco, Inc.; Gold Medal of the Society of Women Geographers; Inamori Foundation Award; Washoe Award; The Kyoto Prize in Basic Science
- **1991:** The Edinburgh Medal
- **1993:** Rainforest Alliance Champion Award
- **1994:** Chester Zoo Diamond Jubilee Medal
- **1995:** Commander of the Order of the British Empire, presented by Her Majesty Queen Elizabeth II; The National Geographic Society Hubbard Medal for Distinction in Exploration, Discovery, and Research; Lifetime Achievement Award, In Defense of Animals; The Moody Gardens Environmental Award; Honorary Wardenship of Uganda National Parks
- **1996:** The Zoological Society of London Silver Medal; The Tanzanian Kilimanjaro Medal; The Primate Society of Great Britain Conservation Award; The Caring Institute Award; The Polar Bear Award; William Proctor Prize for Scientific Achievement
- **1997:** John & Alice Tyler Prize for Environmental Achievement; David S. Ingells, Jr. Award for Excellence; Common Wealth Award for Public Service; The Field Museum's Award of Merit; Tyler Prize for Environmental Achievement; Royal Geographical Society / Discovery Channel Europe Award for A Lifetime of Discovery
- **1998:** Disney's Animal Kingdom Eco Hero Award; National Science Board Public Service Award; The Orion Society's John Hay Award
- **1999:** International Peace Award; Botanical Research Institute of Texas International Award of Excellence in Conservation, Community of Christ International Peace Award
- **2001:** Graham J. Norton Award for Achievement in Increasing Community Livability; Rungius Award of the National Museum of Wildlife Art, USA; Roger Tory Peterson Memorial Medal, Harvard Museum of Natural History; Master Peace Award; Gandhi/King Award for Non-Violence

- **2002:** The Huxley Memorial Medal, Royal Anthropological Institute of Great Britain and Ireland; United Nations "Messenger of Peace" Appointment
- **2003:** Benjamin Franklin Medal in Life Science; Harvard Medical School's Center for Health and the Global Environment Award; Prince of Asturias Award for Technical and Scientific Achievement; Dame of the British Empire, presented by His Royal Highness Prince Charles; Chicago Academy of Sciences' Honorary Environmental Leader Award
- **2004:** Nierenberg Prize for Science in the Public Interest; Will Rogers Spirit Award, the Rotary Club of Will Rogers and Will Rogers Memorial Museums; Life Time Achievement Award, the International Fund for Animal Welfare (IFAW); Honorary Degree from Haverford College
- **2005:** Honorary doctorate degree in science from Syracuse University
- **2005:** Presented with Discovery and Imagination Award
- **2006:** Received the 60th Anniversary Medal of the UNESCO and the French Légion d'honneur.
- **2007:** Honorary doctorate degree in commemoration of Linnaeus from Uppsala University
- **2007:** Honorary doctorate degree from University of Liverpool
- **2008:** Honorary doctorate degree from University of Toronto

A complete list of Goodall's awards and honors is available through her curriculum vitae on the Jane Goodall Institute website.^[17]

Personal life

Goodall has been married twice. On 28 March 1964 she married aristocratic wildlife photographer Baron Hugo van Lawick at Chelsea Old Church, London, becoming Baroness Jane van Lawick-Goodall. The couple had a son, Hugo Eric Louis, affectionately known as 'Grub', who was born in 1967. They divorced in 1974. In 1975 she married Derek Bryceson (a member of Tanzania's parliament and the director of that country's national parks) and they remained married until his death in 1980. Jane and her younger sister, Judy, both suffer from prosopagnosia, a neurological condition which impairs the recognition of human faces.^[18]

Publications

Source: <http://www.janegoodall.org/jane/pub.asp>

Books

- **1969** *My Friends the Wild Chimpanzees* Washington, DC: National Geographic Society
- **1971** *Innocent Killers* (with H. van Lawick). Boston: Houghton Mifflin; London: Collins.
- **1971** *In the Shadow of Man* Boston: Houghton Mifflin; London: Collins. Published in 48 languages.
- **1986** *The Chimpanzees of Gombe: Patterns of Behavior* Boston: Bellknap Press of the Harvard University Press. Published also in Japanese and Russian. R.R. Hawkins Award for the Outstanding Technical, Scientific or Medical book of 1986, to Bellknap Press of Harvard University Press, Boston. The Wildlife Society (USA) Award for "Outstanding Publication in Wildlife Ecology and Management".
- **1990** *Through a Window: 30 years observing the Gombe chimpanzees* London: Weidenfeld & Nicolson; Boston: Houghton Mifflin. Translated into more than 15 languages. 1991 Penguin edition, UK. American Library Association "Best" list among Nine Notable Books (Nonfiction) for 1991.
- **1993** *Visions of Caliban* (co-authored with Dale Peterson, Ph.D.). Boston: Houghton Mifflin. New York Times "Notable Book" for 1993. Library Journal "Best Sci-Tech Book" for 1993.
- **1999** *Brutal Kinship* (with Michael Nichols). New York: Aperture Foundation.
- **1999** *Reason For Hope; A Spiritual Journey* (with Phillip Berman). New York: Warner Books, Inc. Translated into Japanese.
- **2000** *40 Years At Gombe* New York: Stewart, Tabori, and Chang.

- **2000** *Africa In My Blood* (edited by Dale Peterson). New York: Houghton Mifflin Company.
- **2001** *Beyond Innocence: An Autobiography in Letters, the later years* (edited by Dale Peterson). New York: Houghton Mifflin Company
- **2002** *The Ten Trusts: What We Must Do To Care for the Animals We Love* (with Marc Bekoff). San Francisco: Harper San Francisco
- **2005** *Harvest for Hope: A Guide to Mindful Eating* New York: Warner Books, Inc. ISBN 0-446-53362-9

Children's books

- **1972** *Grub: The Bush Baby* (with H. van Lawick). Boston: Houghton Mifflin.
- **1988** *My Life with the Chimpanzees* New York: Byron Preiss Visual Publications, Inc. Translated into French, Japanese and Chinese. Parenting's Reading-Magic Award for "Outstanding Book for Children," 1989.
- **1989** *The Chimpanzee Family Book* Saxonville, MA: Picture Book Studio; Munich: Neugebauer Press; London: Picture Book Studio. Translated into more than 15 languages, including Japanese and Kiswahili. The UNICEF Award for the best children's book of 1989. Austrian state prize for best children's book of 1990.
- **1989** *Jane Goodall's Animal World: Chimps* New York: Macmillan.
- **1989** *Animal Family Series: Chimpanzee Family; Lion Family; Elephant Family; Zebra Family; Giraffe Family; Baboon Family; Hyena Family; Wildebeest Family* Toronto: Madison Marketing Ltd.
- **1994** *With Love* New York / London: North-South Books. Translated into German, French, Italian, and Japanese.
- **1999** *Dr. White* (illustrated by Julie Litty). New York: North-South Books.
- **2000** *The Eagle & the Wren* (illustrated by Alexander Reichstein). New York: North-South Books.
- **2001** *Chimpanzees I Love: Saving Their World and Ours* New York: Scholastic Press
- **2004** *Rickie and Henri: A True Story* (with Alan Marks) Penguin Young Readers Group

Films

- **1963** *Miss Goodall and the Wild Chimpanzees* National Geographic Society
 - **1975** *Miss Goodall: The Hyena Story* The World of Animal Behavior Series
 - **1984** *Among the Wild Chimpanzees* National Geographic Special
 - **1988** *People of the Forest* with Hugo van Lawick
 - **1990** *Chimpanzee Alert* in the Nature Watch Series, Central Television
 - **1990** *Chimps, So Like Us* HBO film nominated for 1990 Academy Award
 - **1990** *The Life and Legend of Jane Goodall* National Geographic Society.
 - **1990** *The Gombe Chimpanzees* Bavarian Television
 - **1995** *Fifi's Boys* for the Natural World series for the
 - **1996** *Chimpanzee Diary* for BBC2 Animal Zone
 - **1997** *Animal Minds* for BBC
 - **2000** *Jane Goodall: Reason For Hope* PBS special produced by KTCA
 - **2001** *Chimps R Us* PBS special Scientific Frontiers.
 - **2002** *Jane Goodall's Wild Chimpanzees* (IMAX format), in collaboration with Science North
 - **2005** *Jane Goodall's Return to Gombe* for Animal Planet
-

In popular culture

- Goodall is honored by the Walt Disney Company with a plaque on the the Tree of Life at Walt Disney World's Animal Kingdom theme park, alongside a carving of her beloved David Greybeard, the original chimp who approached Goodall during her first year at Gombe.[19] The story goes that when she was invited to visit the developing Animal Kingdom park as a consultant and saw the Tree of Life, she didn't see a chimp as part of the tree. To rectify this situation, the Imagineers added the carving of David Graybeard and the plaque honoring her at the entrance to the *It's Tough to be a Bug!* show.



David Greybeard Sculpture at Animal Kingdom

- Cartoonist Gary Larson once drew a cartoon in his *The Far Side* newspaper comic that showed two chimpanzees grooming. One finds a human hair on the other and inquires, "Conducting a little more 'research' with that Jane Goodall tramp?" The Jane Goodall Institute thought this to be in bad taste, and had their lawyers draft a letter to Larson and his distribution syndicate, in which they described the cartoon as an "atrocious." They were stymied, however, by Goodall herself, who revealed that she found the cartoon amusing. Since then, all profits from sales of a shirt featuring this cartoon have gone to the JGI.
- Goodall also appeared and lent her voice as herself in the animated TV series *The Wild Thornberrys*.
- The protagonist in Jonathan Safran Foer's second novel, *Extremely Loud and Incredibly Close*, asks Goodall for a recommendation, to which she responds with a gentle rejection.
- In *The Simpsons* episode "Simpsons Safari", a character loosely based on Goodall is a research scientist in charge of a chimpanzee refuge who is secretly forcing them to mine diamonds for her benefit.
- On her album *Street Angel* Stevie Nicks pays tribute to Jane Goodall with the track "Jane".
- In the movie *George of the Jungle*, Beatrice Stanhope sits next to Ape the Gorilla and says "I feel just like Jane Goodall", to which Ape replies "Ma'am, I have known Jane Goodall, and you certainly aren't Jane Goodall".

See also

- USC Jane Goodall Research Center

External links

- The Jane Goodall Institute ^[20]
- Roots & Shoots ^[21] Youth oriented offshoot of the Jane Goodall Institute
- Hugo van Lawick ^[22] (ex-husband)

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Dian Fossey

Dian Fossey	
Born	January 16, 1932 San Francisco, California, USA
Died	December 26, 1985 (aged 53) Volcanoes National Park, → Rwanda
Citizenship	United States
Fields	Ethology, primatology
Institutions	Karisoke, Cornell University
Alma mater	University of Cambridge
Known for	Seminal contributions to primatology
Influences	→ Jane Goodall, → Louis Leakey, George Schaller

Dian Fossey (January 16, 1932– December 26, 1985, Virunga Mountains, → Rwanda) was an American zoologist who undertook an extensive study of → gorilla groups over a period of 18 years. She observed them daily for years in the mountain forests of → Rwanda, initially encouraged to work there by famous paleontologist → Louis Leakey. She was murdered in 1985, possibly by poachers.

Her work is somewhat similar to → Jane Goodall's work with chimpanzees.

Education

The first college Fossey went to was Marin Junior College, and she took business classes. Fossey enrolled in a pre-veterinary course in biology at the University of California, Davis, after attending Lowell High School in San Francisco, going against the advice of her stepfather who wanted her to pursue business instead. She supported herself by working as a clerk at White Front (a department store), doing other clerking and laboratory work, and working as a machinist in a factory. Fossey later transferred to San José State College (now San José State University) to study occupational therapy after having difficulty with chemistry and physics. She received her bachelor's degree in 1954. At that time, Fossey also established herself as an equestrian.

Initially following her college major, Fossey began a career in occupational therapy, eventually becoming director of the occupational therapy department at Kosair Children's Hospital in Louisville, Kentucky.^[1] While working in Louisville (living a few miles south of the town on a farm called Glenmary) she attended a lecture by → Louis Leakey. She subsequently received her PhD from Darwin College, Cambridge, for a thesis entitled "The behavior of the mountain gorilla" in 1976. Between 1981 and 1983 Dian Fossey lectured as Professor at Cornell University in Ithaca, New York.

Interest in Africa

Fossey became interested in Africa after seeing photos and hearing about it from her friend Mary White Henry, who had been there. After taking out a loan in 1963, Fossey embarked on a trip to Africa. At Olduvai Gorge, Tanzania, Fossey met Dr. → Louis Leakey and his wife Mary Leakey while they were examining the area for hominid fossils. Louis talked to Fossey about the work of → Jane Goodall and the importance of long term research of the great apes, work pioneered by George Schaller. After leaving the Leakeys, Fossey saw her first wild mountain gorillas during a visit to Uganda.

By 1966, Fossey had gained the support of Dr. Leakey, and through him, funds to carry out long-term research on the mountain gorillas. She began her field study at Kabara, in the Democratic Republic of Congo (then Zaire), but by

1967, political upheaval, involving battles breaking out throughout Zaire, forced her to move to Rwanda.^[2]

Work

In 1967, she founded the Karisoke Research Center, a remote rainforest camp nestled in the Virunga Mountains in Ruhengeri province, Rwanda. When her photograph, taken by Bob Campbell, appeared on the cover of *National Geographic Magazine* in January 1970, Fossey became an international celebrity, bringing massive publicity to her cause of saving the mountain gorilla from extinction, as well as convincing the general public that gorillas are not as bad as they are sometimes depicted in movies and books. Photographs showing the gorilla "Peanuts" touching Fossey's hand depicted the first recorded peaceful contact between a human being and a wild gorilla. Her extraordinary rapport with animals and her background as an occupational therapist brushed away the Hollywood "King Kong" myth of an aggressive, savage beast.

Fossey strongly supported "active conservation"—for example anti-poaching patrols and preservation of natural habitat—as opposed to "theoretical conservation", which includes the promotion of tourism. She was also strongly opposed to zoos, as the capture of individual animals all too often involves the killing of their family members. Many animals do not survive the transport, and the breeding rate and survival rate in zoos are often lower than in the wild. For example, in 1978, Fossey attempted to prevent the export of two young gorillas, Coco and Pucker, from Rwanda to the Cologne, Germany, zoo. She learned that, during their capture, 20 adult gorillas had been killed. The two captives were given to Fossey by their captors for treatment of injuries suffered during capture and captivity. With considerable effort, she restored them to some approximation of health. They were shipped to Cologne, where they lived nine years in captivity, both dying in the same month.^[3] She viewed the holding of animals in "prison" (zoos) for the entertainment of people as unethical.^[4]

Fossey is responsible for the revision of a European Community project that converted parkland into pyrethrum farms. Thanks to her efforts, the park boundary was lowered from the 3,000-meter line to the 2,500-meter line.

When Fossey's favourite gorilla, Digit, was decapitated for the price of \$20 by poachers in 1977, she created the Digit Fund with the intent to raise money for anti-poaching patrols.^[4]

Fossey's 1983 autobiographical book *Gorillas in the Mist* was praised by Nikolaas Tinbergen, the Dutch ethologist and ornithologist who won the 1973 Nobel Prize in Physiology or Medicine. Her book remains the best-selling book about gorillas of all time.^[3]

Death

Fossey was murdered in the bedroom of her cabin on December 26, 1985. Her skull had been split by a panga (machete), a tool widely used by poachers, which she had confiscated years earlier and hung as a decoration on the wall of her living room adjacent to her bedroom. Fossey was found dead beside her bed and two meters away from the hole in the cabin that was cut on the day of her murder.^[3] Despite the violent nature of the wound, there was relatively little blood in her bedroom, leading some to believe that she was killed before the head-wound was inflicted, as head wounds, even superficial ones, usually bleed profusely.

Farley Mowat's biography of Fossey, *Woman in the Mists*, suggests that it is unlikely that she was killed by poachers. Mowat believes that she was killed by those who viewed her as an impediment to the touristic and financial exploitation of the gorillas. According to the book, which includes many of Fossey's private letters, poachers would have been more likely to kill her in the forest, with little risk to themselves.

On the night of Fossey's murder, a metal sheeting from her bedroom was removed at the only place of the bedroom where it would not have been obstructed by her furniture, which supports the case that the murder was committed by someone who was familiar with the cabin and her day-to-day activities. The sheeting of her cabin, which was normally securely locked at night, might also have been removed after the murder to make it appear as if the killing was the work of poachers. But, according to Mowat, it is unlikely that a stranger could have entered her cabin by

cutting a hole and then going to her living-room to get the panga, giving Fossey time to escape. The cabin showed signs of a struggle as there was broken glass on the floor and tables and other furniture overturned. Fossey was found dead with her gun beside her but the ammunition didn't fit the weapon. All Fossey's valuables were still in the cabin - thousands of dollars in cash and travelers' checks, and photo equipment remained untouched — valuables a poor poacher would most likely have taken.

After Fossey's death, her entire staff, including Rwelekana, a tracker she had fired months before, was arrested. All but Rwelekana, who was later found dead in prison, supposedly having hanged himself, were released. Mowat believes that Fossey was murdered by an African man she may have admitted inside her cabin but who was working for the very people who wanted her removed so the gorillas could be exploited as a tourist and entertainment attraction.^[3]

Fossey is interred in Rwanda at Karisoke Research Station ^[5] ^[6] in a site that she herself had constructed for her dead gorilla friends. She was buried in the gorilla graveyard next to Digit, who was killed and beheaded in 1977, and near many gorillas killed by poachers. Today, the Karisoke Research Center is operated by the Dian Fossey Gorilla Fund International and continues the daily gorilla monitoring and protection that she started.

Fossey's will stated that all her money (including proceeds from the movie) should go to the Digit Fund to finance anti-poaching patrols. However, her mother, Kitty Price, challenged the will and won.^[3]

The director of ORTPN, Habirameye, who refused to renew Fossey's last visa request, insisted at the filming of *Gorillas in the Mist* that there should be as little about the death scene as possible.

Intrigues and opponents

According to Linda Melvern in her book *Conspiracy to Murder*, Protais Zigiranyirazo, Préfet of Ruhengeri, animal trader and Rwanda's ex-president's brother-in-law, could also have been "implicated in the murder of Dian Fossey in 1985." Quoting Nick Gordon, author of a book about Fossey's death, "Another reason why she might have been murdered is that she knew too much about the illegal trafficking by Rwanda's ruling clique." Protais Zigiranyirazo also had strong financial interests in gorilla tourism.

Fossey was portrayed by her detractors as eccentric and obsessed, and all kinds of stories circulated about her. According to her letters, ORTPN, the World Wildlife Fund, African Wildlife Foundation, FPS, the Mountain Gorilla Project and some of her former students tried to wrest control of the Karisoke research center from her for the purpose of tourism, by portraying her as unstable. In her last two years, Fossey claims not to have lost any gorillas to poachers; however the Mountain Gorilla Project, which was supposed to patrol the Mount Sabyinyo area, tried to cover up gorilla deaths caused by poaching and diseases transmitted through tourists. Nevertheless, these organizations received most of the public donations.^[3] The public often believed their money would go to Fossey, who was struggling to finance her anti-poaching patrols, while organizations collecting in her name put it into tourism projects and as she put it "to pay the airfare of so-called conservationists who will never go on anti-poaching patrols in their life."

Many of the organizations that opposed Fossey, including ORTPN (the Rwandan tourism office) and other wildlife organizations, used and continue to use her name for their financial gain up to this day.^[3] Weeks before her death, ORTPN refused to renew her visa, and pressure on Fossey was mounting. However, Fossey managed to obtain a special two-year visa through Augustin Nduwayezu, a benevolent Secretary-General in charge of immigration.^[3] Mowat believes that the extension of her visa amounted to a de facto death warrant.

Months before her death, Fossey signed a \$1,000,000 contract with Universal Studios for a movie that was to be based on her book, *Gorillas in the Mist*. The prospect that her work would be funded far into the future may have contributed to her demise.

Legacy

After her death, Fossey's Digit Fund in the U.S. was renamed the Dian Fossey Gorilla Fund International. The Digit Fund in the UK, which Fossey lost to the Fauna Protection League (FPS), was also renamed after her as "The Dian Fossey Gorilla Fund UK" (DFGF-UK). However she never received any funds collected in her name by the FPS; and although some conservationists associated with the FPS wanted her to be removed from Rwanda FPS and the DFGF-UK (which renamed itself The Gorilla Organization in 2006), they continue to use her name up to this day for their financial purposes (including promotion of tourism, which Fossey opposed, and the financing of local bureaucrats).^[3]

One of Fossey's friends, Shirley McGreal, continues to work for the protection of primates through the work of her International Primate Protection League (IPPL) one of the few wildlife organizations that according to Fossey effectively promotes "active conservation".

In his book "The Dark Romance" H. Hayes writes that after Fossey's death no poacher dared to enter the forest out of fear of being arrested as a murder suspect and that after the conviction of one of her students poaching soared again, eliminating all remaining elephants and leopards.

Between Fossey's death until the 1994 Rwanda genocide, Karisoke was directed by former students who had opposed her.^[3] During the genocide, the camp was completely looted and destroyed. Today only remnants remain of her cabin, as it had been converted into a museum for tourists at the time. During the civil war the Virunga parks were filled with refugees and illegal logging destroyed vast areas.

Today, the Rwandan people have realized the importance of the mountain gorillas and their natural habitat. They have returned to the past by bringing back Kwita Izina - the Baby Gorilla Naming Ceremony in which each baby gorilla gets a name.

Books

Mowat's *Virunga*, whose British and U.S. editions are called *Woman in the Mist* 'The Story of Dian Fossey and the Mountain Gorillas of Africa', was the first book-length biography of Fossey, and it serves as an insightful counterweight to the dramatizations and fiction of the movie. It includes many of Fossey's own letters and entries in her journals.

A new book published in 2005 by National Geographic in the United States and Palazzo Editions in the United Kingdom as *No One Loved Gorillas More*, written by Camilla de la Bedoyere, features for the first time Fossey's story told through the letters she wrote to her family and friends. The book was published to commemorate the twentieth anniversary of her death, and includes many of Bob Campbell's previously unpublished photographs.

In 2006, *Gorilla Dreams: The Legacy of Dian Fossey* was published, written by the investigative journalist Georgianne Nienaber. Although Fossey's death is officially unsolved, recently released documents obtained through the Freedom of Information Act, as well as testimony from the International War Crimes Tribunal proceedings, offer new suspects, motives, and opportunities. Every fact about Fossey's life is meticulously annotated. However, the setting of her conversations with the murdered gorillas is obviously fictional, yet steeped in Rwandan tradition.

More recently, the Kentucky Opera Visions Program, in Louisville, has written an opera about Fossey. The opera, entitled *Nyiramachabelli*, premiered on May 23, 2006.

A book called the *Dark Romance of Dian Fossey* was published in 1989 and compares the story of Fossey with versions as seen by others. However, much of the book is uncited and it repeats the salacious and racist stories created by her detractors. Rosamond Carr, former head of the orphanage in Gisenyi who saved the lives of more than a thousand children and who knew Fossey, states in her biography (*Land of a Thousand Hills*) that the "Dark Romance" book was based on plain lies, just as the article which preceded it and proved to be particularly damaging.^[7] For instance, the book claims that Fossey became a racist because, as stated in the book, she was gang-raped by Rwandan soldiers - an event that Fossey and her friends repeatedly and vehemently denied.

She is also prominently featured in a book by the Vanity Fair journalist Alex Shoumatoff called *African Madness*. Rosamond Carr was equally dismissive of that book's presentation of facts.^[7]

Film biography

Universal Studios bought the film rights to *Gorillas in the Mist* from Fossey in 1985, and Warner Bros. Studios bought the rights to the Hayes article, despite its having been severely criticized by Rosamond Carr. As a result of a legal battle between the two studios, a co-production was arranged.

Portions of *Gorillas in the Mist* and the Hayes article were adapted for *Gorillas in the Mist: The Story of Dian Fossey* (1988), starring Sigourney Weaver. The book had covered Fossey's scientific career in great detail and omitted material on her personal life, such as her affair with photographer Bob Campbell. In the film, however, the affair with Campbell (played by Bryan Brown) formed a major subplot.

The Hayes article had portrayed Fossey as a woman completely obsessed with "her" gorillas, who would stop at nothing to protect them. And indeed the film included a fictitious scene in which Fossey orchestrated the mock hanging of a poacher, and another where she burned poachers' huts. It also introduced fictional characters, such as the animal trader Van Vecten, and changed the names of Fossey's students.

After making *Gorillas in the Mist*, Weaver became a supporter of the Dian Fossey Gorilla Fund, and is now its Honorary Chair.^[8]

Quotes

- "When you realize the value of all life, you dwell less on what is past and concentrate more on the preservation of the future."

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See also

- Leakey's Angels


External links

- Murder in the Mist solved? Animal Welfare Institute Quarterly ^[9]
- Dian Fossey Gorilla Fund International ^[10]
- <http://ippl.org>
- The Legacy of Dian Fossey ^[11]
- Dian Fossey eco money with quote ^[12]
- January 1970 article by Fossey in National Geographic - with pictures ^[13]
- This article gives some information about the degradation of Dian's relationship with National Geographic Society prior to her death ^[14]

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Gorilla

Gorilla ^[1]
<div></div>
<div>Western Gorilla (<i>Gorilla gorilla</i>)</div>
Scientific classification
<div>Kingdom: Animalia</div> <div>Phylum: Chordata</div> <div>Class: Mammalia</div> <div>Order: → Primates</div> <div>Family: Hominidae</div> <div>Subfamily: Homininae</div> <div>Tribe: Gorillini</div> <div>Genus: <i>Gorilla</i> I. Geoffroy, 1852</div>
Type species
<div><i>Troglodytes gorilla</i> Savage, 1847</div>
Species
<div><i>Gorilla gorilla</i> <i>Gorilla beringei</i></div>



Gorillas are the largest of the living → primates. They are ground-dwelling and predominantly herbivorous. They inhabit the forests of central → Africa. Gorillas are divided into two species and (still under debate as of 2008) either four or five subspecies. The DNA of gorillas is 98%–99% identical to that of a human,^[2] and they are the next closest living relatives to humans after the two → chimpanzee species.

Gorillas live in tropical or subtropical forests. Although their range covers a small percentage of Africa, gorillas cover a wide range of elevations. The Mountain Gorilla inhabits the Albertine Rift montane cloud forests of the Virunga Volcanoes, ranging in altitude from 2225 to 4267 m (7300–14000 ft). Lowland Gorillas live in dense forests and lowland swamps and marshes as low as sea level.

Etymology

The American physician and missionary Thomas Staughton Savage and naturalist Jeffries Wyman first described the Western Gorilla (they called it *Troglodytes gorilla*) in 1847 from specimens obtained in Liberia.^[3] The name was derived from the Greek word *Gorillai* (a "tribe of hairy women") described by Hanno the Navigator, a Carthaginian navigator and possible visitor (circa 480 BC) to the area that later became Sierra Leone.^[4]

Evolution and classification



Female gorilla

The closest relatives of gorillas are chimpanzees and humans, from which gorillas diverged about 7 million years ago.^[5] Human genes differ only 1.6% on average from their corresponding gorilla genes in their sequence, but there is further difference in how many copies each gene has.^[6]

Until recently there was considered to be a single gorilla species, with three subspecies: the Western Lowland Gorilla, the Eastern Lowland Gorilla and the Mountain Gorilla.^[7] ^[8] There is now agreement that there are two species with two subspecies each. More recently it has been claimed that a third subspecies exists in one of the species.

Primatologists continue to explore the relationships between various gorilla populations.^[7] The species and subspecies listed here are the ones upon which most scientists agree.

- **Genus *Gorilla*** ^[1]
 - Western Gorilla (*Gorilla gorilla*)

- Western Lowland Gorilla (*Gorilla gorilla gorilla*)
- Cross River Gorilla (*Gorilla gorilla diehli*)
- Eastern Gorilla (*Gorilla beringei*)
 - Mountain Gorilla (*Gorilla beringei beringei*)
 - Eastern Lowland Gorilla (*Gorilla beringei graueri*)

The proposed third subspecies of *Gorilla beringei*, which has not yet received a trinomen, is the Bwindi population of the Mountain Gorilla, sometimes called the Bwindi Gorilla.

Physical characteristics

Gorillas move around by knuckle-walking. Adult males range in height from 165-175 cm (5 ft 5 in – 5 ft 9 in), and in weight from 140–204.5 kg (310–450 lb). Adult females are often half the size of a silverback, averaging about 140 cm (4 ft 7 in) tall and 100 kg (220 lb). Occasionally, a silverback of over 183 cm (6 ft) and 225 kg (500 lb) has been recorded in the wild. However, obese gorillas in captivity have reached a weight of 270 kg (600 lb).^[9] Gorillas have a facial structure which is described as mandibular prognathism, that is, their mandible protrudes farther out than the maxilla.

The Eastern Gorilla is more darkly colored than the Western Gorilla, with the Mountain Gorilla being the darkest of all. The Mountain Gorilla also has the thickest hair. The Western Lowland Gorilla can be brown or grayish with a reddish forehead. In addition, gorillas that live in lowland forests are more slender and agile than the more bulky Mountain Gorilla.^[10]

Almost all gorillas share the same blood type (B)^[11] and, like humans, have individual finger prints.^[12]

Behavior

Group life

A **silverback** is an adult male gorilla, typically more than 12 years of age and named for the distinctive patch of silver hair on his back. A silverback gorilla has large canine teeth that come with maturity. **Blackbacks** are sexually mature males of up to 11 years of age.



A silverback gorilla portrait

Silverbacks are the strong, dominant troop leaders. Each typically leads a troop (group size ranges from 5 to 30) and is in the center of the troop's attention, making all the decisions, mediating conflicts, determining the movements of the group, leading the others to feeding sites and taking responsibility for the safety and well-being of the troop. Blackbacks may serve as backup protection.

Males will slowly begin to leave their original troop when they are about 11 years old, traveling alone or with a group of other males for 2–5 years before being able to attract females to form a new group and start breeding. While infant gorillas normally stay with their mother for 3–4 years, silverbacks will care for weaned young orphans, though never to the extent of carrying the little gorillas. If challenged by a younger or even by an outsider male, a silverback will scream, beat his chest, break branches, bare his teeth, then charge forward. Sometimes a younger male in the group can take over leadership from an old male. If the leader is killed by disease, accident, fighting or poachers, the group will split up, as the animals disperse to look for a new protective male. Occasionally, a group may be taken over in its entirety by another male. There is a strong risk that the new male will kill the infants of the dead silverback.

Food and foraging

Gorillas are herbivores,^[13] eating fruits, leaves, and shoots. Further they are classified as foliovores. Much like other animals that feed on plants and shoots, they sometimes ingest small insects as well.^[14] Gorillas spend most of the day eating. Their large sagittal crest and long canines allow them to crush hard plants like bamboo. Lowland gorillas feed mainly on fruit while Mountain gorillas feed mostly on herbs, stems and roots.^[10]



Female and baby gorillas

Reproduction and lifespan

Gestation is 8½ months. There are typically 3 to 4 years between births. Infants stay with their mothers for 3–4 years. Females mature at 10–12 years (earlier in captivity); males at 11–13 years. Lifespan is between 30–50 years, although there have been exceptions. For example the Dallas Zoo's Jenny lived to the age of 55.^{[15] [16] [17]} Recently, gorillas have been observed engaging in face-to-face sex, a trait that was once considered unique to humans and the Bonobo.^[18]

Intelligence

Gorillas are closely related to humans and are considered highly intelligent. A few individuals in captivity, such as Koko, have been taught a subset of sign language (see animal language for a discussion).

Tool use

The following observations were made by a team led by Thomas Breuer of the Wildlife Conservation Society in September 2005. Gorillas are now known to use tools in the wild. A female gorilla in the Nouabalé-Ndoki National Park in the Republic of Congo was recorded using a stick as if to gauge the depth of water whilst crossing a swamp. A second female was seen using a tree stump as a bridge and also as a support whilst fishing in the swamp. This means that all of the great apes are now known to use tools.^[19]

In September 2005, a two and a half year old gorilla in the Republic of Congo was discovered using rocks to smash open palm nuts inside a game sanctuary.^[20] While this was the first such observation for a gorilla, over 40 years previously → chimpanzees had been seen using tools in the wild, famously 'fishing' for termites. Great apes are endowed with a semi-precision grip, and certainly have been able to use both simple tools and even weapons, by improvising a club from a convenient fallen branch.

Studies

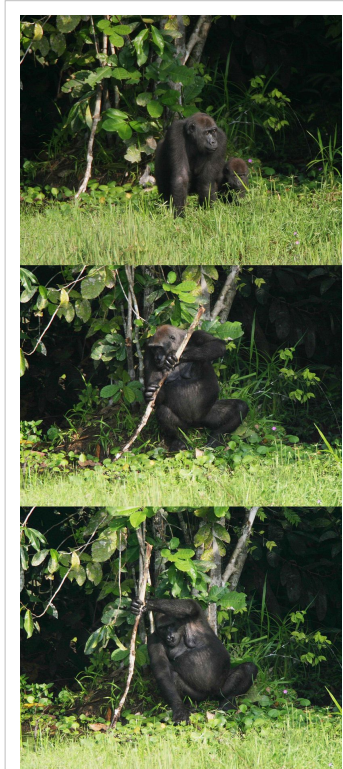
The word "gorilla" comes from the history of Hanno the Navigator, a Carthaginian explorer on an expedition on the west African coast. They encountered "a savage people, the greater part of whom were women, whose bodies were hairy, and who our interpreters called Gorillae".^[21] The word was then later used as the species name, though it is unknown whether what these ancient Carthaginians encountered were truly gorillas, another species of ape or monkeys, or humans.^[7]

American physician and missionary Thomas Staughton Savage obtained the first specimens (the skull and other bones) during his time in Liberia in → Africa.^[3] The first scientific description of gorillas dates back to the publication of by Savage and the naturalist Jeffries Wyman in 1847 in *Proceedings of the Boston Society of Natural History*,^{[22] [23]} where *Troglodytes gorilla* is described, now known as the Western Gorilla. Other species of gorilla are described in the next couple of years.^[7]

Explorer Paul du Chaillu was the first westerner to see a live gorilla during his travel through western equatorial → Africa from 1856 to 1859. He brought dead specimens to the U.K in 1861.^{[24] [25]}

The first systematic study was not conducted until the 1920s, when Carl Akeley of the American Museum of Natural History traveled to Africa to hunt for an animal to be shot and stuffed. On his first trip he was accompanied by his friends Mary Bradley, a famous mystery writer, and her husband. After their trip, Mary Bradley wrote *On the Gorilla Trail*. She later became an advocate for the conservation of gorillas and wrote several more books (mainly for children). In the late 1920s and early 1930s, Robert Yerkes and his wife Ava helped further the study of gorillas when they sent Harold Bigham to Africa. Yerkes also wrote a book in 1929 about the great apes.

After World War 2, George Schaller was one of the first researchers to go into the field and study primates. In 1959, he conducted a systematic study of the mountain gorilla in the wild and published his work. Years later, at the behest of → Louis Leakey and the *National Geographic*, → Dian Fossey conducted a much longer and more



A female gorilla exhibiting tool use by using a tree trunk as a support whilst fishing

comprehensive study of the Mountain Gorilla. It was not until she published her work that many misconceptions and myths about gorillas were finally disproved, including the myth that gorillas are violent.

Endangerment

Both species of gorilla are endangered, and have been subject to intense poaching for a long time. Threats to gorilla survival include habitat destruction and the bushmeat trade. In 2004 a population of several hundred gorillas in the Odzala National Park, Republic of Congo was essentially wiped out by the Ebola virus.^[26] A 2006 study published in *Science* concluded that more than 5,000 gorillas may have died in recent outbreaks of the Ebola virus in central Africa. The researchers indicated that in conjunction with commercial hunting of these apes, the virus creates "a recipe for rapid ecological extinction."^[27] Conservation efforts include the Great Ape Survival Project, a partnership between the United Nations Environment Programme and the United Nations Educational, Scientific and Cultural Organization, and also an international treaty, the Agreement on the Conservation of Gorillas and Their Habitats, concluded under UNEP-administered Convention on Migratory Species. The Gorilla Agreement is the first legally binding instrument exclusively targeting Gorilla conservation and came into effect on 1 June 2008.

Cultural references

Since they came to the attention of western society in the 1860s, gorillas have been a recurring element of many aspects of popular culture and media. For example, gorillas have featured prominently in monstrous fantasy films such as *King Kong*, and pulp fiction such as the stories of Tarzan and Conan the Barbarian have featured gorillas as physical opponents to the titular protagonists.

See also

- List of apes – notable individual apes
- List of fictional apes

External links


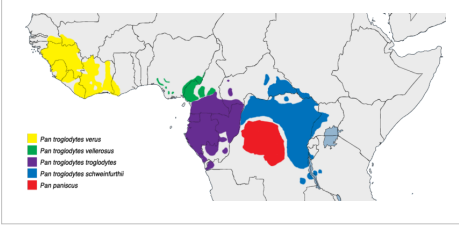
- Pulitzer Center on Crisis Reporting^[28] International Gorilla Conservation Programme (Video)
 - Primate Info Net *Gorilla* Factsheet^[29] - taxonomy, ecology, behavior and conservation
 - San Diego Zoo Gorilla Factsheet^[30] - features a video and photos
 - World Wildlife Fund: Gorillas^[31] - conservation, facts and photos
 - Gorilla protection^[32] - Gorilla conservation
 - Welcome to the Year of the Gorilla 2009^[33]
 - Virunga National Park^[34] - The Official Website for Virunga National Park, the Last Refuge for Congo's Mountain Gorillas.
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 - [34] <http://gorillacd.org/>
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Chimpanzee

Chimpanzees ^[1]
<div></div>
Common Chimpanzee (<i>Pan troglodytes</i>)
Scientific classification
Domain: Eukarya
Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Primates
Family: Hominidae
Subfamily: Homininae
Tribe: Hominini
Subtribe: Panina
Genus: <i>Pan</i> Oken, 1816
Type species
<i>Pan troglodytes</i>
Species
<i>Pan troglodytes</i> <i>Pan paniscus</i>
<div></div>
Distribution of <i>Pan</i> spp.

Chimpanzee, sometimes colloquially **chimp**, is the common name for the two extant species of ape in the genus *Pan*. The Congo River forms the boundary between the native habitat of the two species.^[2]

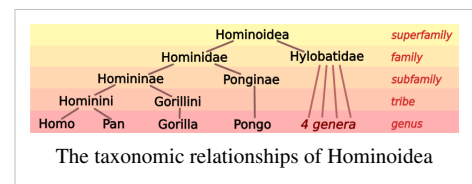
- Common Chimpanzee, *Pan troglodytes*: the better known chimpanzee lives primarily in West and Central Africa.
- Bonobo, *Pan paniscus*: also known as the "Pygmy Chimpanzee or Bonzi Chimpanzee", this species is found in the forests of the Democratic Republic of the Congo.

Chimpanzees are members of the Hominidae family, along with → gorillas, humans, and orangutans. Chimpanzees split from human evolution about 6 million years ago and thus the two chimpanzee species are the closest living relatives to humans, all being members of the Hominini tribe (along with extinct species of Hominina subtribe). Chimpanzees are the only known members of the **Panina** subtribe. The two *Pan* species split only about one million years ago.

Evolutionary history

Evolutionary relationships

The genus *Pan* is now considered to be part of the subfamily Homininae to which humans also belong. These two species are the closest living evolutionary relatives to humans, sharing a common ancestor with humans six million years ago.^[3] Research by Mary-Claire King in 1973 found 99% identical DNA between human beings and chimpanzees,^[4] although research since has modified that finding to about 94%^[5] commonality, with at least some of the difference occurring in non-coding DNA. It has even been proposed that *troglodytes* and *paniscus* belong with *sapiens* in the genus *Homo*, rather than in *Pan*. One argument for this is that other species have been reclassified to belong to the same genus on the basis of less genetic similarity than that between humans and chimpanzees.



Fossils

Many human fossils have been found, but chimpanzee fossils were not described until 2005. Existing chimpanzee populations in West and Central Africa do not overlap with the major human fossil sites in East Africa. However, chimpanzee fossils have now been reported from Kenya. This would indicate that both humans and members of the *Pan* clade were present in the East African Rift Valley during the Middle Pleistocene.^[6]

Anatomy and physiology

The male common chimp is up to 1.7 m (up to 5.6 ft) high when standing, and weighs as much as 70 kg (154 lb); the female is somewhat smaller. The common chimp's long arms, when extended, have a span half again as long as the body's height and are longer than its legs. The bonobo is a little shorter and thinner than the common chimpanzee but has longer limbs. Both species use their long, powerful arms for climbing in trees. On the ground, chimpanzees usually walk on all fours using their knuckles for support with their hands clenched, a form of locomotion called knuckle-walking. Chimpanzee feet are better suited for walking than are those of the orangutan because the chimp's soles are broader and the toes shorter. Both the common chimpanzee and bonobo can walk upright on two legs when carrying objects with their hands and arms. The coat is dark; the face, fingers, palms of the hands, and soles of the feet are hairless; and the chimp has no tail. A bony shelf over the eyes gives the forehead a receding appearance, and the nose is flat. Although the jaws protrude, the lips are thrust out only when a chimp pouts. The brain of a chimpanzee is about half the size of the human brain.^[7]



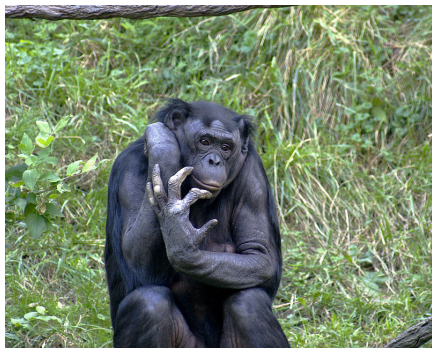
This Chimpanzee is bald, so his muscles are easily visible.

Chimpanzee testicles are unusually large for their body size, with a combined weight of about 4 ounces (110 g) compared to a gorilla's 1 ounce (28 g) or a human's 1.5 ounces (43 g). This is generally attributed to sperm competition due to the polyandrous nature of chimpanzee mating behavior.^[8]

The exposed skin of the face, hands and feet varies from pink to very dark in both species, but is generally lighter in younger individuals, darkening as maturity is reached. The Bonobo has proportionately longer upper limbs and tends to walk upright more often than the Common Chimpanzee. A University of Chicago Medical Centre study has found significant genetic differences between chimpanzee populations.^[9]

Chimpanzees rarely live past the age of 40 in the wild, but have been known to reach the age of more than 60 in captivity.

Behaviors



Bonobo

Anatomical differences between the Common Chimpanzee and the Bonobo are slight, but in sexual and social behaviour there are marked differences. The Common Chimpanzee has an omnivorous diet, a troop hunting culture based on beta males led by an alpha male, and highly complex social relationships.

The Bonobo, on the other hand, has a mostly frugivorous diet and an egalitarian, nonviolent, matriarchal, sexually receptive behaviour.^[10] Bonobos are well known to have frequent sex, with bisexuality the norm for both males and females, and also to use sex to help prevent and resolve conflicts. Different groups of chimpanzees also have different cultural behaviour with preferences for types of tools.^[11]

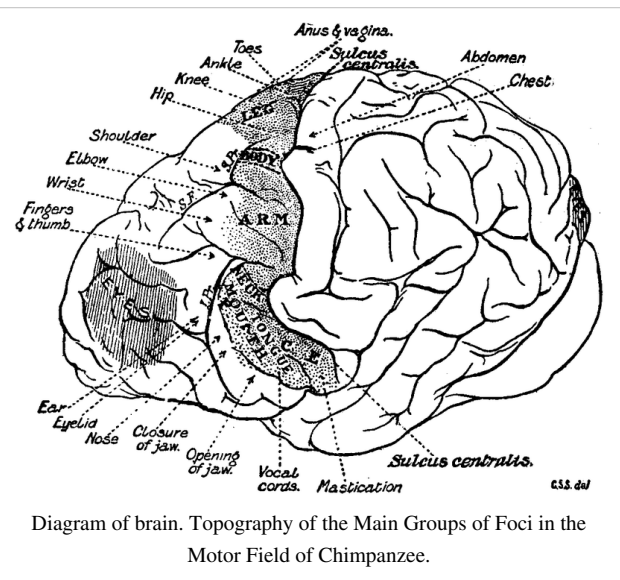
The Common Chimpanzee tends to display higher levels of aggression than the Bonobo.^[12]

Intelligence

Chimpanzees make tools and use them to acquire foods and for social displays; they have sophisticated hunting strategies requiring cooperation, influence and rank; they are status conscious, manipulative and capable of deception; they can learn to use symbols and understand aspects of human language including some relational syntax, concepts of number and numerical sequence;^[13] and they are capable of spontaneous planning for a future state or event.^[14]

Tool use

One of the most significant discoveries was in October 1960 when → Jane Goodall observed the use of tools among chimpanzees. Recent research indicates that chimpanzee stone tool use dates to at least 4300 years ago.^[15] A recent study revealed the use of such advanced tools as spears, which Common Chimpanzees in Senegal sharpen with their teeth, being used to spear Senegal Bushbabies out of small holes in trees.^{[16] [17]} Before the discovery of tool use in chimps, it was believed that humans were the only species to make and use tools, but several other tool-using species are now known.^{[18] [19]}



Empathy



Chimpanzee mother and baby

Recent studies have shown that chimpanzees engage in apparently altruistic behaviour within groups,^{[20] [21]} but are indifferent to the welfare of unrelated group members.^[22]

Evidence for "chimpanzee spirituality" includes display of mourning, "incipient romantic love", "rain dance", appreciation of natural beauty such as a sunset over a lake, curiosity and respect towards wildlife (such as the python, which is neither a threat nor a food source to chimpanzees), empathy toward other species (such as feeding turtles) and even "animism" or "pretend play" in chimps cradling and grooming rocks or sticks.^[23]

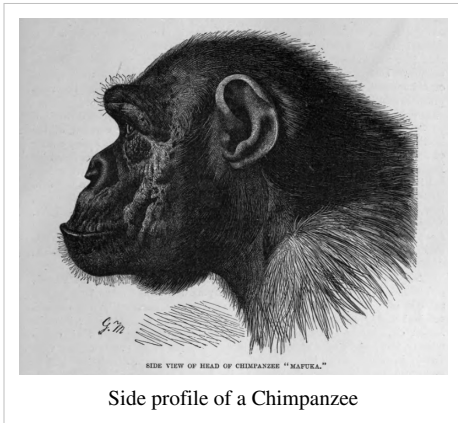
Communication

Chimps communicate in a manner similar to human non-verbal communication, using vocalizations, hand gestures, and facial expressions. Research into the chimpanzee brain has revealed that chimp communication activates an area of the chimp brain that is in the same position as Broca's area, the language center in the human brain.^[24]

Studies of language

Scientists have long been fascinated with the studies of language, believing it to be a unique human cognitive ability. To test this hypothesis, scientists have attempted to teach human language to several species of great apes. One early attempt by Allen and Beatrice Gardner in the 1960s involved spending 51 months teaching American Sign Language to a chimpanzee named Washoe. The Gardners reported that Washoe learned 151 signs, and that he had spontaneously taught them to other chimpanzees.^[25] Over a longer period of time, Washoe learned over 800 signs.^[26]

There is ongoing debate among some scientists, notably Noam Chomsky and David Premack, about non-human great apes' ability to learn language. Since the early reports on Washoe, numerous other studies have been conducted with varying levels of success^[27], including one involving a chimpanzee named, in parody, Nim Chimpsky trained by Herbert Terrace of Columbia University. Although his initial reports were quite positive, in November 1979, Terrace and his team re-evaluated the videotapes of Nim with his trainers, analyzing them frame by frame for signs as well as for exact context (what was happening both before and after Nim's signs). In the re-analysis, Terrace concluded that Nim's utterances could be explained merely as prompting on the part of the experimenters, as well as mistakes in reporting the data. "Much of the apes' behavior is pure drill," he said. "Language still stands as an important definition of the human species." In this reversal, Terrace now argued that Nim's use of ASL was not like human language acquisition. Nim never initiated conversations himself, rarely introduced new words, and simply imitated what the humans did. Nim's sentences also did not grow in length, unlike human children whose vocabulary and sentence length show a strong positive correlation.^[28]



Side profile of a Chimpanzee

Memory

A 30-year study at Kyoto University's Primate Research Institute has shown that chimps are able to learn to recognize the numbers 1-9 and their values. The chimps further show an aptitude for photographic memory, demonstrated in experiments in which the jumbled digits 1-9 are flashed onto a computer screen for less than a quarter of a second, after which the chimp, Ayumu, is able to correctly and quickly point to the positions where they appeared in ascending order. The same experiment was failed by world memory champion Ben Pridmore on most attempts.^[29]

Laughter in apes

Laughter might not be confined or unique to humans. The differences between chimpanzee and human laughter may be the result of adaptations that have evolved to enable human speech. Self-awareness of one's situation as seen in the mirror test, or the ability to identify with another's predicament (see mirror neurons), are prerequisites for laughter, so animals may be laughing in the same way that humans do.

Chimpanzees, → gorillas, and orangutans show laughterlike vocalizations in response to physical contact, such as wrestling, play chasing, or tickling. This is documented in wild and captive chimpanzees. Common



Young chimpanzees playing

Chimpanzee laughter is not readily recognizable to humans as such, because it is generated by alternating inhalations and exhalations that sound more like breathing and panting. There are instances in which non-human primates have been reported to have expressed joy. One study analysed and recorded sounds made by human babies and Bonobos when tickled. It found, that although the Bonobo's laugh was a higher frequency, the laugh followed a pattern similar to that of human babies and included similar facial expressions. Humans and chimpanzees share similar ticklish areas of the body, such as the armpits and belly. The enjoyment of tickling in chimpanzees does not diminish with age.^[30]

See also: Laughter in animals

Aggression

Chimps are highly territorial and are known to kill other chimps.^[31] Chimpanzees also engage in targeted hunting of lower order primates such as the red colobus^[32] and bush babies,^{[33] [34]} and use the meat from these kills as a "social tool" within their community.^[35] In February 2009, after a relatively rare incident in which a pet chimp named Travis attacked a woman in Stamford, Connecticut, the U.S. House of Representatives approved a primate pet ban in the United States.^[36]

Interactions with humans

History

Africans have had contact with chimpanzees for millennia. Chimpanzees have been kept as pets for centuries in a few African villages, especially in Congo. The first recorded contact of Europeans with chimps took place in present-day Angola during the 1600s. The diary of Portuguese explorer Duarte Pacheco Pereira (1506), preserved in the Portuguese National Archive (Torre do Tombo), is probably the first European document to acknowledge that chimpanzees built their own rudimentary tools.

The first use of the name "chimpanzee", however, did not occur until 1738. The name is derived from a Tshiluba language term "kivili-chimpenze", which is the local

name for the animal and translates loosely as "mockman" or possibly just "ape". The colloquialism "*chimp*" was most likely coined some time in the late 1870s.^[37] Biologists applied *Pan* as the genus name of the animal. Chimps as well as other apes had also been purported to have been known to Western writers in ancient times, but mainly as myths and legends on the edge of European and Arab societal consciousness, mainly through fragmented and sketchy accounts of European adventurers. Apes are mentioned variously by Aristotle, as well as the Bible, where apes and baboons are described as having been collected by Solomon in 1 Kings 10:22.

The first of these early transcontinental chimpanzees came from Angola and were presented as a gift to Frederick Henry, Prince of Orange in 1640, and were followed by a few of its brethren over the next several years. Scientists described these first chimpanzees as "pygmies", and noted the animals' distinct similarities to humans. The next two decades would see a number of the creatures imported into Europe, mainly acquired by various zoological gardens as entertainment for visitors.



Gregoire: 62-year-old chimpanzee



Hugo Rheinhold's Affe mit Schädel ("Ape with skull") is an example of how chimps were viewed at the end of the 19th century.

Darwin's theory of natural selection (published in 1859) spurred scientific interest in chimpanzees, as in much of life science, leading eventually to numerous studies of the animals in the wild and captivity. The observers of chimpanzees at the time were mainly interested in behaviour as it related to that of humans. This was less strictly and disinterestedly scientific than it might sound, with much attention being focused on whether or not the animals had traits that could be considered 'good'; the intelligence of chimpanzees was often significantly exaggerated, as immortalized in Hugo Rheinhold's Affe mit Schädel (see image, left). By the end of the 1800s chimpanzees remained very much a mystery to humans, with very little factual scientific information available.

The 20th century saw a new age of scientific research into chimpanzee behaviour. Before 1960, almost nothing was known about chimpanzee behaviour in their natural habitat. In July of that year, → Jane Goodall set out to Tanzania's Gombe forest to live among the chimpanzees, where she primarily studied the members of the Kasakela chimpanzee community. Her discovery that chimpanzees made and used tools was groundbreaking, as humans were previously believed to be the only species to do so. The most progressive early studies on chimpanzees were spearheaded primarily by Wolfgang Köhler and Robert Yerkes, both of whom were renowned psychologists. Both men and their colleagues established laboratory studies of chimpanzees focused specifically on learning about the intellectual abilities of chimpanzees, particularly problem-solving. This typically involved basic, practical tests on laboratory chimpanzees, which required a fairly high intellectual capacity (such as how to solve the problem of acquiring an out-of-reach banana). Notably, Yerkes also made extensive observations of chimpanzees in the wild which added tremendously to the scientific understanding of chimpanzees and their behaviour. Yerkes studied chimpanzees until World War II, while Köhler concluded five years of study and published his famous *Mentality of Apes* in 1925 (which is coincidentally when Yerkes *began* his analyses), eventually concluding that "chimpanzees manifest intelligent behaviour of the general kind familiar in human beings ... a type of behaviour which counts as specifically human" (1925).^[38]



Chimpanzee at the Los Angeles Zoo

The August, 2008, issue of the *American Journal of Primatology* reports results of a year-long study of chimpanzees in Tanzania's Mahale Mountains National Park which produced evidence that chimpanzees are becoming sick from viral infectious diseases they have likely contracted from humans. Molecular, microscopic and epidemiological investigations demonstrated that the chimpanzees living at Mahale Mountains National Park have been suffering from a respiratory disease that is likely caused by a variant of a human paramyxovirus.^[39]

Studies



Enos the space chimp before being inserted into the Mercury-Atlas 5 capsule in 1961.

As of November 2007, there were 1,300 chimpanzees housed in 10 U.S. laboratories (out of 3,000 great apes living in captivity there), either wild-caught, or acquired from circuses, animal trainers, or zoos.^[40] Most of the labs either conduct or make the chimps available for invasive research,^[41] defined as "inoculation with an infectious agent, surgery or biopsy conducted for the sake of research and not for the sake of the chimpanzee, and/or drug testing".^[42] Two federally funded laboratories use chimps: Yerkes National Primate Research Laboratory at Emory University in Atlanta, Georgia, and the Southwest National Primate Center in San Antonio, Texas.^[43] Five hundred chimps have been retired from laboratory use in the U.S. and live in sanctuaries in the U.S. or Canada.^[41]

Chimpanzees used in biomedical research tend to be used repeatedly over decades, rather than used and killed as with most laboratory animals. Some individual chimps currently in U.S. laboratories have been used in experiments for over 40 years.^[44] According to Project R&R, a campaign to release chimps held in U.S. labs — run by the New England Anti-Vivisection Society in conjunction with → Jane Goodall and other primate researchers — the oldest known chimp in a U.S. lab is Wenka, who was born in a laboratory in Florida on May 21, 1954.^[45] She was removed from her mother on the day of birth to be used in a vision experiment that lasted 17 months, then sold as a pet to a family in North Carolina. She was returned to the Yerkes National Primate Research Center in 1957 when she

became too big to handle. Since then, she has given birth six times, and has been used in research into alcohol use, oral contraceptives, ageing, and cognitive studies.^[46]

With the publication of the chimpanzee genome, there are reportedly plans to increase the use of chimps in labs, with some scientists arguing that the federal moratorium on breeding chimps for research should be lifted.^[43] ^[47] A five-year moratorium was imposed by the U.S. National Institutes of Health (NIH) in 1996, because too many chimps had been bred for HIV research, and it has been extended annually since 2001.^[43]

Other researchers argue that chimps are unique animals and either should not be used in research, or should be treated differently. Pascal Gagneux, an evolutionary biologist and primate expert at the University of California, San Diego, argues that, given chimpanzees' sense of self, tool use, and genetic similarity to human beings, studies using chimps should follow the ethical guidelines that are used for human subjects unable to give consent.^[43] Also, a recent study suggests that chimpanzees which are retired from labs exhibit a form of Post Traumatic Stress Disorder.^[48] Stuart Zola, director of the Yerkes National Primate Research Laboratory, disagrees. He told *National Geographic*: "I don't think we should make a distinction between our obligation to treat humanely any species, whether it's a rat or a monkey or a chimpanzee. No matter how much we may wish it, chimps are not human."^[43]

An increasing number of governments are enacting a Great Ape research ban forbidding the use of chimpanzees and other great apes in research or toxicology testing.^[49] As of 2006, Austria, New Zealand, the Netherlands, Sweden, and the UK had introduced such bans.^[50]

Attacks on humans

Common Chimpanzees have been known to attack humans on occasion.^[51] ^[52] There have been many attacks in Uganda by chimpanzees against human children; the results are sometimes fatal for the children. Some of these attacks are presumed to be due to chimpanzees being intoxicated (from alcohol obtained from rural brewing operations) and mistaking human children^[53] for the Western Red Colobus, one of their favourite meals.^[54] The dangers of careless human interactions with chimpanzees are only aggravated by the fact that many chimpanzees perceive humans as potential rivals.^[55] With up to five times the upper body strength of a human, an angered chimpanzee could easily overpower and potentially kill a fully grown man, as shown by the attack and near death of former NASCAR driver St. James Davis.^[56] ^[57] Another example of chimpanzee to human aggression occurred February 2009 in Stamford, Connecticut, when a 200 pound, 14 year old pet chimp named Travis attacked his owner's friend, who lost her hands, eyelids, nose and part of her upper jaw/sinus area from the attack.^[58] ^[59] There are at least 6 documented cases of chimpanzees snatching and eating human babies.^[60]

In popular culture

Despite their close relationship to humans, chimpanzees have been consistently treated as inconsequential in popular culture, where they are most often cast in stereotypical, limited roles^[61] as childlike companions, sidekicks or clowns.^[62] They are especially suited for the latter role on account of their prominent facial features, long limbs and fast movements, which humans find inherently amusing.^[62] Accordingly, entertainment acts featuring chimpanzees dressed up as humans have been traditional staples of circuses and stage shows.^[62]

In the age of television, a new genre of chimp act emerged in the United States: series whose cast consisted entirely of chimpanzees dressed as humans and "speaking" lines dubbed by human actors.^[61] These shows, examples of which include *Lancelot Link*, *Secret Chimp* in the 1970s or *The Chimp Channel* in the 1990s, relied on the novelty of their ape cast to make their timeworn, low comedy gags funny.^[61] Their chimpanzee "actors" were as interchangeable as the apes in a circus act, being amusing as chimpanzees and not as individuals.^[61]

When chimpanzees appear in other TV shows, they generally do so as comic relief sidekicks to humans. In that role, for instance, J. Fred Muggs appeared with *Today Show* host Dave Garroway in the 1950s, "Judy" on *Daktari* in the 1960s or "Darwin" on *The Wild Thornberrys* in the 1990s.^[61] Chimpanzee characters and actions are almost never relevant to the plot, in contrast to the fictional depictions of other animals, such as dogs (as in *Lassie*), dolphins

(*Flipper*), horses (*The Black Stallion*) or even other great apes (*King Kong*).^[61]

The rare exceptions – depictions of chimpanzees as individuals rather than stock characters, and as central rather than incidental to the plot^[61] – are usually found in science fiction. Robert A. Heinlein's short story *Jerry Was a Man* of 1947 centers on a genetically enhanced chimpanzee suing for better treatment,^[61] a theme also echoed in David Brin's 1990s *Uplift* series. In film, the 1972 movie *Conquest of the Planet of the Apes* centers on a fierce revolt of enslaved apes, led by the chimpanzee Caesar, against their human masters.^[61] In one episode of *Monk*, a chimp was in danger of being euthanized after it was thought to have killed its owner.

See also

- Chimpanzee genome project
- Great ape personhood
- List of apes

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External links

- Envirovet - Video clip of Ngamba Island Chimpanzee Sanctuary (<http://www.envirovet.org/>)
- The First 100 Chimps in Research in the USA (<http://first100chimps.wesleyan.edu/>)
- Chimpanzee: Wildlife summary from the African Wildlife Foundation (<http://www.awf.org/wildlives/6>)
- Chimpanzees Make/Use Spears (<http://educatedearth.net/story.php?id=977>)
- Chimpanzee Cultures Online (<http://chimp.st-and.ac.uk/cultures/intro.htm>)
- Kanyawara Chimpanzee Blog from Uganda (Harvard Biological Anthropology research) (<http://www.fas.harvard.edu/~primates>)
- Chimp Haven (The National Chimpanzee Sanctuary) (<http://www.chimphaven.org>)
- Chimps as Pets (http://www.savethechimps.org/chimps_pets.asp) (SaveTheChimps.org)
- Using Pac-Man to test cognitive reasoning in chimps (<http://www.maniacworld.com/chimp-vs-pacman.htm>)
- Talking With Chimps (<http://www.geocities.com/RainForest/Vines/4451/TalkWithChimps.html>)
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- Did chimp and human ancestors interbreed? (<http://www.msnbc.msn.com/id/12836649/>)
- Chimp "Stone Age" Finds Are Earliest Nonhuman Ape Tools, Study Says (<http://news.nationalgeographic.com/news/2007/02/070213-chimps-tools.html>)
- Chimpanzee Facial Expression & Vocalizations (http://images.google.com/imgres?imgurl=http://webdrive.service.emory.edu/groups/research/chimpanzee-cognition/CCL/ethogram/spec_laugh.jpg&imgrefurl=http://webdrive.service.emory.edu/groups/research/chimpanzee-cognition/CCL/ethogram.htm&h=382&w=784&sz=94&hl=en&start=6&tbnid=SzTd6o7BvU2mUM:&tbnh=70&tbnw=143&prev=/images?q=Chimpanzee+laughter&svnum=10&hl=en&lr=&rls=HPIA,HPIA:2006-24,HPIA:en&sa=N)
- A chimpanzee laughter sample. Goodall 1968 & Parr 2005 (<http://realaudio.service.emory.edu/ramgen/YERKES/PARR/laugh.rm>)
- Fox News: Study: Chimps Are More Evolved Than Humans (<http://www.foxnews.com/story/0,2933,266809,00.html?sPage=fnc.science/evolution>)

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- Chimpanzees in Research: Past, Present, and Future (http://www.hsus.org/web-files/PDF/hsp/ SOA_3-2005_Chap9.pdf) from The State of the Animals III: 2005 (http://www.hsus.org/press_and_publications/humane_bookshelf/state_of_animals_iii_2005.html)
 - The Predatory Behavior and Ecology of Wild Chimpanzees (<http://www-rcf.usc.edu/~stanford/chimphunt.html>)
 - You can give 140 orphaned chimpanzees a safe haven (<http://www.globalgiving.co.uk/pr/2700/proj2663a.html>)
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Primate

Primates^[1]
Fossil range: Late Paleocene–recent

PreЄ

Є

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Olive Baboon, *Papio anubis*

Scientific classification

Kingdom:

Animalia

Phylum:

Chordata

Class:

Mammalia

Infraclass:

Eutheria

Superorder:

Euarchontoglires

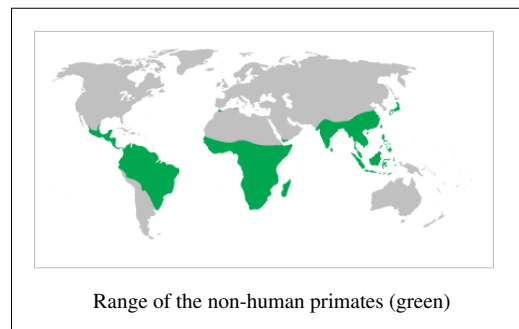
Order:

Primates

Linnaeus, 1758

Families

• 15, See classification

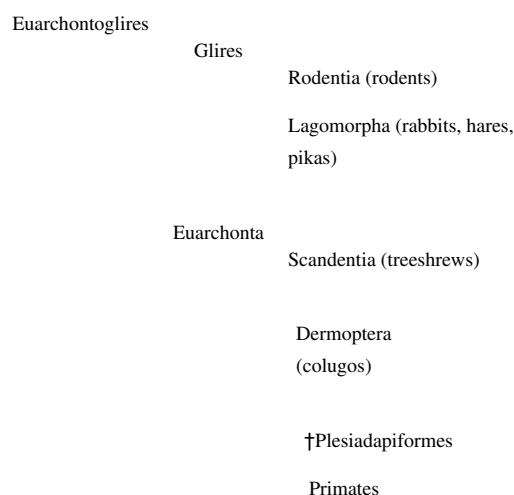


A **primate** (pronounced /'praɪmeɪt/, us dict: prī'-māt) is a member of the biological order **Primates** (English pronunciation: /praɪ'meɪtiːz/ prī-mā'-tēz; Latin: "prime, first rank"^[2]), the group that contains lemurs, lorises, galagos, tarsiers, monkeys, and apes, with the last category including great apes.^[3] With the exception of humans, who inhabit every continent on Earth,^[a] most primates live in tropical or subtropical regions of the Americas, Africa and Asia.^[4] Primates range in size from the Madame Berthe's Mouse Lemur weighing only 30 grams (1.1 oz) to the Mountain Gorilla weighing 200 kilograms (440 lb). According to fossil evidence, the primitive ancestors of primates may have existed in the late Cretaceous period around 65 million years ago, and the oldest known primate is the Late Paleocene *Plesiadapis*, c. 55–58 million years ago. Molecular clock studies suggest that the primate branch may be even older, originating in the mid-Cretaceous period around 85 mya.

The Primates order has traditionally been divided into two main groupings: prosimians and simians. Prosimians have characteristics most like those of the earliest primates, and included the lemurs of Madagascar, loriforms and tarsiers. Simians included the monkeys and apes. More recently, taxonomists have created the suborder Strepsirrhini, or "curly-nosed" primates, to include non-tarsier prosimians and the suborder Haplorrhini, or "dry-nosed" primates, to include tarsiers and the simians. Simians are divided into two groups: the platyrrhines ("flat nosed") or New World monkeys of South and Central America and the catarrhine ("narrow nosed") monkeys of Africa and southeastern Asia. The New World monkeys include the capuchin, howler and squirrel monkeys, and the catarrhines include the Old World monkeys (such as baboons and macaques) and the apes. Humans are the only catarrhines that have spread outside of Africa, South Asia, and East Asia, although fossil evidence shows many species once existed in Europe as well.

Considered generalist mammals, primates exhibit a wide range of characteristics. Some primates (including some great apes and baboons) do not live primarily in trees, but all species possess adaptations for climbing trees. Locomotion techniques used include leaping from tree to tree, walking on two or four limbs, knuckle-walking, and swinging between branches of trees (known as brachiation). Primates are characterized by their large brains, relative to other mammals, as well as an increased reliance on stereoscopic vision at the expense of smell, the dominant sensory system in most mammals. These features are most significant in monkeys and apes, and noticeably less so in lorises and lemurs. Three-color vision has developed in some primates. Most also have opposable thumbs and some have prehensile tails. Many species are sexually dimorphic, which means males and females have different physical traits, including body mass, canine tooth size, and coloration. Primates have slower rates of development than other similarly sized mammals, and reach maturity later but have longer lifespans. Some species live in solitude, others live in male–female pairs, and others live in groups of up to hundreds of members.

Evolutionary history



The Primates order are a part of the clade Eutheria which is nested within the Euarchontoglires clade of the class Mammalia. Recent molecular genetic research on primates, colugos, and treeshrews has shown that the two species of colugos are more closely related to the primates than the treeshrews,^[5] even though the treeshrews were at one time considered primates.^[6] These three orders make up the Euarchonta clade. This clade combines with the Glires clade (composed of the Rodentia and Lagomorpha) to form the Euarchontoglires clade. Various, both Euarchonta and Euarchontoglires are ranked as superorders. Also, some scientists consider Dermoptera a suborder of Primates and call the "true" primates the suborder Euprimates.^[7]

Evolution

The primate lineage is thought go back to at least 65 mya, even though the oldest known primate from the fossil record is *Plesiadapis* (c. 55–58 mya) from the Late Paleocene.^{[8] [9]} Other studies, including molecular clock studies, have estimated the origin of the primate branch to have been in the mid-Cretaceous period, around 85 mya.^{[10] [11] [12]}

In modern cladistic reckonings, the Primates order is monophyletic. The suborder Strepsirrhini, the curly-nosed or "wet-nosed" primates, is generally thought to have split off from the primitive primate line about 63 mya (million years ago),^[13] although earlier dates are also supported.^[14] The seven strepsirrhine families are the five related lemur families and the two remaining families that include the lorisids and the galagos.^{[1] [15]} Older classification schemes wrap the Lepilemuridae into the Lemuridae and the Galagidae into the Lorisidae, yielding a three-two family split instead of the five-two split as presented here.^[1] During the Eocene, most of the northern continents were dominated by two groups, the adapiforms and the omomyids.^{[16] [17]} The former is considered a member of Strepsirrhini, but it does not have a toothcomb like modern lemurs; recent analysis has suggested *Darwinius masillae* fits into this grouping.^[18] The latter was related closely to tarsiers, monkeys, and apes. It is unclear exactly how these two groups relate to extant primates. Omomyids perished about 30 mya,^[17] while Adapids survived until about 10 mya.^[19]



Ring-tailed Lemur, a strepsirrhine primate

According to genetic studies, the lemurs of Madagascar diverged from the lorises approximately 75 mya.^[14] These studies, as well as chromosomal and molecular evidence, also show that lemurs are more closely related to each other than to other strepsirrhine primates.^{[14] [20]} However, Madagascar split from Africa at 160 mya and from India at 90 mya.^[21] For lemurs to be more closely related to each other than other strepsirrhine primates, it is thought that a very small ancestral population came to Madagascar via a single rafting event between 50 and 80 million years ago.^{[14] [20] [21]} Other colonization options have been examined, such as multiple colonizations from Africa and India, but none are supported by the genetic and molecular evidence.^[16]

Until recently the Aye-aye has been difficult to place within Strepsirrhini.^[1] Theories had been proposed that its family, Daubentoniidae, was either a lemuriform primate (meaning its ancestors split from lemur line more recently than the lemurs and lorises split) or a sister group to all the other strepsirrhines. In 2008, the Aye-aye family (Daubentoniidae) was confirmed to be a lemuriform

and descended from the same ancestral lemur population that rafted to the island, resulting in the move of Daubentoniidae out of its own infraorder, Chiromyiformes, and into the infraorder Lemuriformes.^[14]

The suborder Haplorrhini, the simple-nosed or "dry-nosed" primates, is composed of two sister clades.^[1] The prosimian tarsiers in family Tarsiidae (monotypic in its own infraorder Tarsiiformes), represent the most primitive division at about 58 mya.^{[22] [23]} The Simiiformes infraorder emerged about 40 mya,^[17] and contains the two clades: the parvorder Platyrrhini that developed in South America and contains New World monkeys, and the parvorder Catarrhini that developed in Africa and contains the Old World monkeys, humans and the other apes.^[1] A third clade, which included the eosimiids, developed in Asia but went extinct millions of years ago.^[24]

Like the lemurs, the New World monkeys have unclear origins. Molecular sequence studies based on concatenated sequences have yielded wide variations in the estimated date of the divergence between platyrrhines and catarrhines, ranging from 33 to 70 mya, while studies based on mitochondrial sequences suggest a more consistent date of 35 mya.^[25] It has been postulated that there is a single origin for the anthropoids in Africa some migrated and subsequently speciation occurred.^[16] It is possible that the anthropoid primates traversed the Atlantic ocean during the Eocene, facilitated by Atlantic Ocean ridges and a lowered sea level, then island-hopped to South America.^[16] Once again, a rafting event may explain this transoceanic colonization. Due to continental drift, the young Atlantic Ocean was not nearly as wide as it is today,^[16] and research suggests that a small 1 kg (2.2 lb) primate could have survived 13 days on a raft of vegetation.^[26] Given estimated current and wind speeds, this would have provided enough time to make the voyage between the continents.

Apes and monkeys spread from Africa into Europe and Asia starting in the Miocene.^[27] Soon after, the lorises and tarsiers made the same journey. The first hominid fossils were discovered in Northern Africa and date back 5–8 mya.^[17] Old World monkeys disappeared from Europe about 1.8 mya.^[28] Some molecular and fossil studies generally show that modern humans originated in Africa 100–200 tya (thousand years ago).^[29]

Although primates are well studied in comparison to other animal groups, several new species have been recently discovered; genetic tests on some populations have revealed previously unrecognised



Emperor Tamarin, a New World monkey

species. *Primate Taxonomy* listed about 350 species of primates in 2001,^[30] the author, Colin Groves, increased that number to 376 for his contribution to the third edition of *Mammal Species of the World* (MSW3).^[1] However,

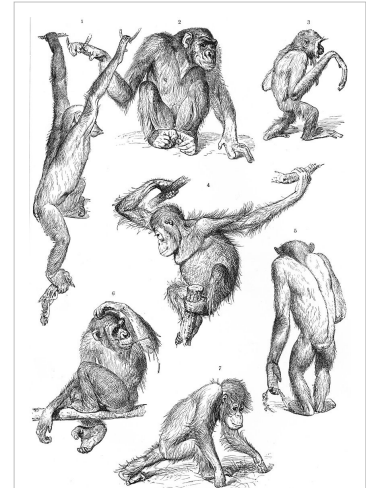
MSW3 falls short of current understanding as its collection was completed in 2003; a number of publications have since pushed the number to 424 species, or 658 including subspecies.^[31] Notable new species not listed in MSW3 include the Bemaraha Woolly Lemur (*Avahi cleesei*, named after British actor and lemur enthusiast John Cleese) and the GoldenPalace.com Monkey (whose name was put up for auction).

Classification of living primates

The following is the listing of the various families of primates:^[1] ^[15] ^[31]

- **Order Primates**

- **Suborder Strepsirrhini:** non-tarsier prosimians
 - Infraorder Lemuriformes
 - Family Cheirogaleidae: dwarf lemurs and mouse-lemurs (32 species)
 - Family Daubentoniidae: Aye-aye (1 species)
 - Family Lemuridae: lemurs (22 species)
 - Family Lepilemuridae: sportive lemurs (26 species)
 - Family Indriidae: woolly lemurs and allies (19 species)
 - Infraorder Lorisiformes
 - Family Lorisidae: lorises, pottos and allies (9 species)
 - Family Galagidae: galagos (19 species)
- **Suborder Haplorrhini:** tarsiers, monkeys and apes
 - Infraorder Tarsiiformes
 - Family Tarsiidae: tarsiers (9 species)
 - Infraorder Simiiformes
 - Parvorder Platyrrhini: New World monkeys
 - Family Callitrichidae: marmosets and tamarins (42 species)
 - Family Cebidae: capuchins and squirrel monkeys (17 species)
 - Family Aotidae: night or owl monkeys (douroucoulis) (10 species)
 - Family Pitheciidae: titis, sakis and uakaris (42 species)
 - Family Atelidae: howler, spider and woolly monkeys (28 species)
 - Parvorder Catarrhini
 - Superfamily Cercopithecoidea
 - Family Cercopithecidae: Old World monkeys (135 species)
 - Superfamily Hominoidea
 - Family Hylobatidae: gibbons or "lesser apes" (13 species)
 - Family Hominidae: great apes (7 species)



A 1927 drawing of → chimpanzees, a gibbon (top right) and two orangutans (center and bottom center). The chimp in the upper left is brachiating; the orang at the bottom center is knuckle-walking.



Homo sapiens, a member of the order Primates

The order Primates was established by Carl Linnaeus in 1758, in the tenth edition of his book *Systema Naturae*,^[32] for the genera *Homo* (humans), *Simia* (other apes and monkeys), *Lemur* (prosimians) and *Vespertilio* (bats). In the first edition of the same book (1735), he had used the name *Anthropomorpha* for *Homo*, *Simia* and *Bradypus* (sloths).^[33] In 1839, Henri Marie Ducrotay de Blainville, following Linnaeus and imitating his nomenclature, established the orders Secundates (including the suborders Chiroptera, Insectivora and Carnivora), Tertiates (or Glires) and Quaternates (including Gravigrada, Pachydermata and Ruminantia),^[34] but these new taxa were not accepted.

Before Anderson and Jones introduced the classification of Strepsirhini and Haplorhini in 1984,^[35] (followed by McKenna and Bell's 1997 work *Classification of Mammals: Above the species level*),^[36] the Primates were divided into two superfamilies: Prosimii and Anthropoidea.^[37] The Prosimii included all of the prosimians: all of Strepsirhini plus the tarsiers. The Anthropoidea contained all of the simians.



Philippine Tarsier, once considered a prosimian, now predominately considered a haplorrhine

Hybrids

Primate hybrids usually arise in captivity,^[38] but there have also been examples in the wild.^[39] ^[40] Hybridization occurs where two species' range overlap to form hybrid zones; hybrids may be created by humans when animals are placed in zoos or due to environmental pressures such as predation.^[39] Intergeneric hybridizations, hybrids of different genera, have also been found in the wild. Although they belong to genera that have been distinct for several million years, interbreeding still occurs between the Gelada and the Hamadryas Baboon.^[41]

Distinguishing features

Primates have diversified in arboreal habitats (trees and bushes) and retain many characteristics that are adaptations to this environment.^[42] They are distinguished by:

- retention of the collar bone in the pectoral girdle;^[42]
- shoulder joints which allow high degrees of movement in all directions;^[42]
- five digits on the fore and hind limbs with opposable thumbs and big toes;^[42]
- nails on the fingers and toes (in most species);^[43]
- a flat nail on the hallux (in all extant species);^[43]
- sensitive tactile pads on the ends of the digits;^[42]
- orbits encircled in bone;^[44]
- a trend towards a reduced snout and flattened face, attributed to a reliance on vision at the expense of olfaction (most notably in haplorrhines, and less so in strepsirrhines);^[44]
- a complex visual system with stereoscopic vision, high visual acuity and color vision;^[42]
- a brain having a well developed cerebellum with posterior lobe and a Calcarine fissure;^[44]
- a large brain in comparison to body size, especially in simians;^[42]
- differentiation of an enlarged cerebral cortex;^[42]
- reduced number of teeth compared to primitive mammals;^[42]
- three kinds of teeth;^[44]
- a well-developed cecum;^[44]
- two pectoral mammary glands;^[42]
- typically one young per pregnancy;^[42]
- a pendulous penis and scrotal testes;^[44]

- a long gestation and developmental period;^[42] and
- a trend towards holding the torso upright leading to bipedalism.^[42]

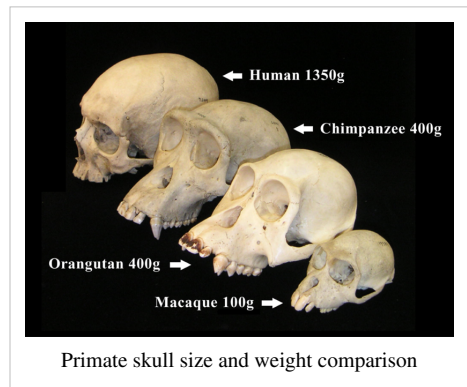
Not all primates exhibit these anatomical traits, nor is every trait unique to primates. For example, other mammals have collar bones, three kinds of teeth and a pendulous penis, while spider monkeys have greatly reduced thumbs, ruffed lemurs have six mammary glands and strepsirrhines generally have longer snouts and a strong sense of smell. Primates are generalist mammals.^[44]

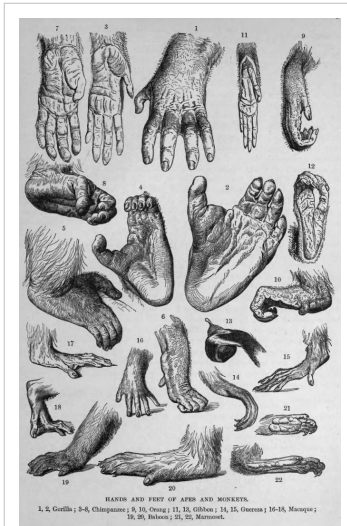
In regard to behavior, primates are frequently highly social, with flexible dominance hierarchies.^[45] New World species form monogamous pair bonds, and show substantial paternal care of their young, unlike most Old World monkeys.^[46]

Anatomy, physiology and morphology

Primates have forward-facing eyes on the front of the skull; binocular vision allows accurate distance perception, useful for the brachiating ancestors of all great apes.^[42] There is a bony ridge above the eye sockets; this ridge reinforces weaker bones in the face which are put under strain during chewing. Strepsirrhines have a postorbital bar, a bone which runs around the eye socket, to protect their eyes; in contrast, the higher primates, haplorrhines, have evolved fully enclosed sockets.^[47]

The primate skull has a large domed cranium which is particularly prominent in anthropoids. The cranium protects the large brain, a distinguishing characteristic of this group.^[42] The endocranial volume (the volume within the skull) is three times greater in humans than in the greatest non-human primate, reflecting a larger brain size.^[48] The mean endocranial volume is 1201 cubic centimeters in humans, 469 cm³ in gorillas, 400 cm³ in chimpanzees and 397 cm³ in orangutans.^[48] The primary evolutionary trend of primates has been the elaboration of the brain, in particular the neocortex (a part of the cerebral cortex), which is involved with sensory perception, generation of motor commands, spatial reasoning, conscious thought and, in humans, language.^[4] While other mammals rely heavily on their sense of smell, the arboreal life of primates has led to a tactile, visually dominant sensory system,^[4] a reduction in the olfactory region of the brain and increasingly complex social behavior.^[49]





An 1893 drawing of the hands and feet of primates

Primates generally have five digits on each limb (pentadactyly), with keratin nails on the end of each finger. The bottom sides of the hands and feet have sensitive pads on the fingertips. Most have opposable thumbs, a characteristic primate feature; however, opposing thumbs are not limited to this order (opossums, for example, also have them).^[42] Thumbs allow some species to use tools. In primates, the combination of opposing thumbs, short fingernails (rather than claws) and long, inward-closing fingers is a relic of the ancestral practice of gripping branches, and has, in part, allowed some species to develop brachiation (swinging by the arms from tree limb to tree limb) as a significant means of transportation. Prosimians have clawlike nails on the second toe of each foot, called toilet-claws, which they use for grooming.^[42]

The primate collar bone is retained as prominent element of the pectoral girdle; this allows the shoulder joint broad mobility.^[45] Apes have more mobile shoulder joints and arms due to the dorsal position of the scapula, broad ribcages that are flatter front-to-back, and a shorter, less mobile spine compared to Old World monkeys (with lower vertebrae greatly reduced, resulting in tail loss in

some species). Old World monkeys are unlike apes in that most have tails. The only primate family with prehensile tails are the New World Atelids, including the howler, spider and woolly monkeys.

Primates show an evolutionary trend towards a reduced snout.^[45] Technically, Old World monkeys are distinguished from New World monkeys by the structure of the nose, and from apes by the arrangement of their teeth.^[49] In New World monkeys the nostrils face sideways; in Old World monkeys, they face downwards.^[49] There is a considerably varied dental pattern in primates and although some have lost most of their incisors, all retain at least one lower incisor.^[49] In most strepsirrhines, the lower incisors and canines form a toothcomb, which is used in grooming and sometimes foraging,^[44] ^[49] and the first lower premolar is shaped like a canine.^[44] Old World monkeys have eight premolars, compared with twelve in New World monkeys.^[49] The Old World species are divided into apes and monkeys depending on the number of cusps on their molars; apes have five, Old World monkeys have four,^[49] although humans may have 4 or 5.^[50] The main hominid molar cusp (hypocone) evolved in early primate history, while the cusp of the corresponding primitive lower molar (paraconid) was lost. Prosimians are distinguished by their immobilized upper lips, the moist tip of their nose and forward-facing lower front teeth.

The evolution of color vision in primates is unique among most eutherian mammals. While the remote vertebrate ancestors of the primates possessed three color vision (trichromaticism), the nocturnal, warm-blooded, mammalian ancestors lost one of three cones in the retina during the Mesozoic period. Fish, reptiles and birds are therefore trichromatic or tetrachromatic while all mammals, with the exception of some primates and marsupials,^[51] are dichromats or monochromats (totally color blind).^[44] Nocturnal primates, such as the night monkeys and bush babies, are often monochromatic. Catarrhines are routinely trichromatic due to a gene duplication of the red-green opsin gene at the base of their lineage, 30 to 40 million years ago.^[44] ^[52] Platyrrhines, on the other hand, are trichromatic in a few cases only.^[53] Specifically, individual females must be heterozygous for two alleles of the opsin gene (red and green) located on the same locus of the X chromosome.^[44] Males, therefore, can only be dichromatic, while females can be either dichromatic or trichromatic. Color vision in strepsirrhines is not as well understood; however, research indicates a range of color vision similar to that found in platyrrhines.^[44]

Like catarrhines, Howler monkeys (a family of platyrrhines) show routine trichromatism that has been traced to an evolutionarily recent gene duplication.^[54] Howler monkeys are one of the most specialized leaf-eaters of the New World monkeys; fruits are not a major part of their diet,^[55] and the type of leaves they prefer to consume (young, nutritive, and digestible) are detectable only by a red-green signal. Field work exploring the dietary preferences of howler monkeys suggests that routine trichromaticism was environmentally selected for.^[53]

Sexual dimorphism

Sexual dimorphism, the variation between individuals of different sex in the same species, is often exhibited in simians, though to a greater degree in Old World species (apes and some monkeys) than New World species. Recent studies involve comparing DNA to examine both the variation in the expression of the dimorphism among primates and the fundamental causes of sexual dimorphism. Primates usually have dimorphism in body mass^[56] ^[57] and canine tooth size^[58] ^[59] along with pelage and skin color.^[60] The dimorphism can be attributed to and affected by different factors, including mating system,^[61] size,^[61] habitat and diet.^[62]



Distinct sexual size dimorphism can be seen between the male Hamadryas Baboons (grey) and the female (brown).

Comparative analyses have generated a more complete understanding of the relationship between sexual selection, natural selection, and mating systems in primates. Studies have shown that dimorphism is the product of changes in both male and female traits.^[63] Ontogenetic scaling, where relative extension of a common growth trajectory occurs, may give some insight into the relationship between sexual dimorphism and growth patterns.^[64] Some evidence from the fossil record suggests that there was convergent evolution of dimorphism, and some extinct hominids probably had greater dimorphism than any living primate.^[63]

Locomotion

Primate species move by brachiation, bipedalism, leaping, arboreal and terrestrial quadrupedalism, climbing, knuckle-walking or by a combination of these methods. Several prosimians are primarily vertical clinger and leapers. These include many bushbabies, all indriids (i.e., sifakas, avahis and indris), sportive lemurs, and all tarsiers.^[65] Other prosimians are arboreal quadrupeds and climbers. Some are also terrestrial quadrupeds, while some are leapers. Most monkeys are both arboreal and terrestrial quadrupeds and climbers. Gibbons, muriquis and spider monkeys all use brachiation extensively.^[28] Woolly monkeys also sometimes brachiate.^[55] Orangutans use a similar form of locomotion called quadramanous climbing, in which they use their arms and legs to carry their heavy bodies through the trees.^[28] → Chimpanzees and → gorillas knuckle walk,^[28] and can move bipedally for short distances. Although numerous species, such as the Australopithecines and early hominids, have exhibited fully bipedal locomotion, humans are the only extant species with this trait.



Diademed Sifaka, a vertical clinger and leaper, ready to leap to another tree

Behavior

Social systems

Richard Wrangham stated that social systems of non-human primates are best classified by the amount of movement by females occurring between groups.^[66] He proposed four categories:

- Female transfer systems – females move away from the group in which they were born. Females of a group will not be closely related whereas males will have remained with their natal groups, and this close association may be influential in social behavior. The groups formed are generally quite small. This organization can be seen in chimpanzees, where the males, who are typically related, will cooperate in defense of the group's territory. Among New World Monkeys, spider monkeys and muriquis use this system.^[67]

- Male transfer systems – while the females remain in their natal groups, the males will emigrate as adolescents. Polygynous and multi-male societies are classed in this category. Group sizes are usually larger. This system is common among the Ring-tailed Lemur, capuchin monkeys and cercopithecine monkeys.^[28]
- Monogamous species – a male–female bond, sometimes accompanied by a juvenile offspring. There is shared responsibility of parental care and territorial defense. The offspring leaves the parents' territory during adolescence. Gibbons essentially use this system, although "monogamy" in this context does not necessarily mean absolute sexual fidelity.^[68]
- Solitary species – often males who defend territories that include the home ranges of several females. This type of organization is found in the prosimians. Orangutans do not defend their territory but effectively have this organization.^[69]



Japanese Macaques bathe together in Jigokudani Hot Spring

Other systems are known to occur as well. For example, with howler monkeys both the males and females typically transfer from their natal group on reaching sexual maturity, resulting in groups in which neither the males nor females are typically related.^[55] Some prosimians, colobine monkeys and callitrichid monkeys use this system.^[28]



→ Chimpanzees are social animals.

Primatologist → Jane Goodall, who studied in the Gombe Stream National Park, noted fission-fusion societies in chimpanzees.^[70] There is *fission* where the main group splits up to forage during the day, then *fusion* when the group returns at night to sleep as a group. This social structure can also be observed in the Hamadryas Baboon,^[71] spider monkeys^[55] and the Bonobo.^[71] The Gelada has a similar social structure in which many smaller groups come together to form temporary herds of up to 600 monkeys.^[71]

These social systems are affected by three main ecological factors: distribution of resources, group size and predation.^[46] Within a social group there is a balance between cooperation and competition. Cooperative behaviors include social grooming (removing skin parasites and cleaning wounds), food sharing, and collective defense against predators or of a territory. Aggressive behaviors often signal competition for availability of food, sleeping sites or mates. Aggression is also used in establishing dominance hierarchies.^[46] ^[72]

Interspecific associations

Several species of primates are known to associate in the wild. Some of these associations have been extensively studied. In the Tai Forest of Africa several species coordinate anti-predator behavior. These include the Diana Monkey, Campbell's Mona Monkey, Lesser Spot-nosed Monkey, Western Red Colobus, King Colobus and Sooty Mangabey, which coordinate anti-predator alarm calls.^[73] Among the predators of these monkeys is the Common Chimpanzee.^[74]

The Red-tailed Monkey associates with several species, including the Western Red Colobus, Blue Monkey, Wolf's Mona Monkey, Mantled Guereza, Black Crested Mangabey and Allen's Swamp Monkey.^[71] Several of these species are predated on by the Common Chimpanzee.^[75]

In South America, squirrel monkeys associate with capuchin monkeys.^[76] This may have more to do with foraging benefits to the squirrel monkeys rather than anti-predation benefits.^[76]

Cognition and communication

Primates have advanced cognitive abilities: some make tools and use them to acquire food and for social displays;^[77]^[78] some have sophisticated hunting strategies requiring cooperation, influence and rank;^[79] they are status conscious, manipulative and capable of deception;^[80] they can recognise kin and conspecifics;^[81]^[82] and they can learn to use symbols and understand aspects of human language including some relational syntax and concepts of number and numerical sequence.^[83]^[84]^[85] Research in primate cognition explores problem solving, memory, social interaction, a theory of mind, and numerical, spatial, and abstract concepts.^[86]

Lemurs, lorises, tarsiers, and New World monkeys rely on olfactory signals for many aspects of social and reproductive behavior.^[4] Specialized glands are used to mark territories with pheromones, which are detected by the vomeronasal organ; this process forms a large part of the communication behavior of these primates.^[4] In Old World monkeys and apes this ability is mostly vestigial, having regressed as trichromatic eyes evolved to become the main sensory organ.^[87] Primates also use vocalizations, gestures, and facial expressions to convey psychological state.^[88]

Life history

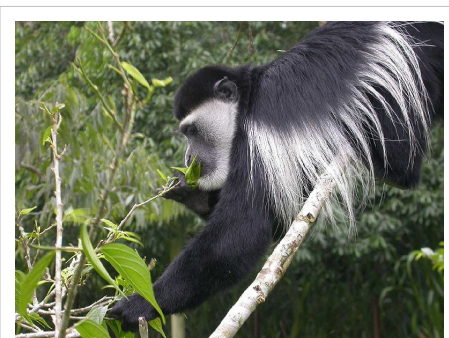
Primates have slower rates of development than other mammals.^[28] All non-human primate infants are breastfed by their mothers and rely on them for grooming and transportation.^[28] In some species, infants are protected and transported by males in the group, particularly males who may be their fathers.^[28] Other relatives of the infant, such as siblings and aunts, may participate in its care as well.^[28] Most primate mothers cease ovulation while breastfeeding an infant; once the infant is weaned the mother can reproduce again.^[28] This often leads to weaning conflict with infants who attempt to continue breastfeeding.^[28]

Primates have a longer juvenile period between weaning and sexual maturity than other mammals of similar size.^[28] During the juvenile period, primates are more susceptible than adults to predation and starvation; they gain experience in feeding and avoiding predators during this time.^[28] They learn social and fighting skills, often through playing.^[28]

Primates, especially females, have longer lifespans than other similarly sized mammals.^[28]

Diet and feeding

Primates exploit a variety of food sources. It has been said that many characteristics of modern primates, including humans, derive from an early ancestor's practice of taking most of its food from the tropical canopy.^[89] Most primates include fruit in their diets to obtain easily digested carbohydrates and lipids for energy.^[28] However, they require other foods, such as leaves or insects, for amino acids, vitamins and minerals. Many primates have anatomical specializations that enable them to exploit particular foods, such as fruit, leaves, gum or insects.^[28] For example, leaf eaters such as howler monkeys, black-and-white colobuses and sportive lemurs have extended digestive tracts which enable them to absorb nutrients from leaves that can be difficult to digest.^[28] Marmosets, which are gum eaters, have strong incisor teeth, enabling them to open tree bark to get to the gum, and claws rather than nails, enabling them to cling to trees while feeding.^[28] The Aye-aye combines rodent-like teeth with a long, thin middle finger to fill the same ecological niche as a woodpecker. It taps on trees to find insect larvae, then gnaws holes in the wood and inserts



Leaf eating Mantled Guereza, a species of black-and-white colobus

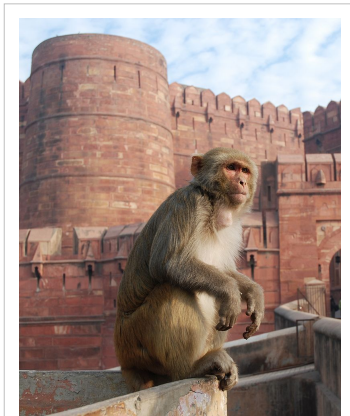
its elongated middle finger to pull the larvae out.^[90] Some species have additional specializations. For example, the Grey-cheeked Mangabey has thick enamel on its teeth, enabling it to open hard fruits and seeds that other monkeys cannot.^[28]

The Gelada is the only primate species that feeds primarily on grass.^[91] Tarsiers are the only carnivorous primates, exclusively eating insects, crustaceans, small vertebrates and snakes (including venomous species).^[92] Capuchin monkeys, on the other hand, can exploit many different types of food, including fruit, leaves, flowers, buds, nectar, seeds, insects and other invertebrates, bird eggs, and small vertebrates such as birds, lizards, squirrels and bats.^[55] The Common Chimpanzee has a varied diet that includes predation on other primate species, such as the Western Red Colobus monkey.^{[74] [75]}



Crab-eating Macaques forage and temporarily store food in their cheeks pouches

Habitat and distribution



Rhesus Macaque at Agra Fort, India

Primates evolved from arboreal animals, and many species live most of their lives in trees. Most primate species live in tropical rain forests. The number of primate species within tropical areas has been shown to be positively correlated to the amount of rainfall and the amount of rain forest area.^[93] Accounting for 25% to 40% of the fruit-eating animals (by weight) within tropical rainforests, primates play an important ecological role by dispersing seeds of many tree species.^[94]

Some species are partially terrestrial, such as baboons and Patas Monkeys, and a few species are fully terrestrial, such as Geladas and Humans. Non-human primates live in a diverse number of forested habitats in the tropical latitudes of Africa, India, Southeast Asia, and South America, including rainforests, mangrove forests, and montane forests. There are some examples of non-human

primates that live outside of the tropics; the mountain-dwelling Japanese Macaque lives in the north of Honshū where there is snow-cover eight months of the year; the Barbary Macaque lives in the Atlas Mountains of Algeria and Morocco. Primate habitats span a range of altitudes: the Black Snub-nosed Monkey has been found living in the Hengduan Mountains at altitudes of 4,700 meters (15,400 ft),^[95] the Mountain Gorilla can be found at 4,200 meters (13,800 ft) crossing the Virunga Mountains,^[96] and the Gelada has been found at elevations of up to 5,000 meters (16,400 ft) in the Ethiopian Highlands. Although most species are generally shy of water, a few are good swimmers and are comfortable in swamps and watery areas, including the Proboscis Monkey, De Brazza's Monkey and Allen's Swamp Monkey, which has developed small webbing between its fingers. Some primates, such as the Rhesus Macaque and gray langurs, can exploit human-modified environments and even live in cities.^{[71] [97]}

Interactions with humans

Some have hypothesized that it is the supposed close relationship and the (sometimes sexual^[98]) interactions between humans and NHPs create pathways for the transmission of zoonotic diseases. Viruses such as *Herpesviridae* (most notably Herpes B Virus), *Poxviridae*, measles, ebola, rabies, the Marburg virus and viral hepatitis can be transmitted to humans; in some cases the viruses produce potentially fatal diseases in both humans and non-human primates.^[99]

Legal and social status

Only humans are recognized as persons and protected in law by the United Nations Universal Declaration of Human Rights.^[b] The legal status of non-human primates (NHPs), on the other hand, is the subject of much debate, with organizations such as the Great Ape Project (GAP) campaigning to award at least some of them legal rights.^[100] In June 2008, Spain became the first country in the world to recognize the rights of some NHPs when its parliament's cross-party environmental committee urged the country to comply with GAP's recommendations, which are that chimpanzees, bonobos, orangutans, and gorillas not be used for animal experiments.^{[101] [102]}

Many species of NHP are kept as pets by humans. GAP estimates that around 3,000 NHPs live as exotic pets in the United States, while the Humane Society of the United States puts the figure much higher, at around 15,000.^[103] The expanding Chinese middle class has increased demand for NHPs as exotic pets in recent years.^[104] Although NHP import for the pet trade was banned in the U.S. in 1975, smuggling still occurs along the United States – Mexico border, with prices ranging from US\$3000 for monkeys to \$30,000 for apes.^[105]

Primates are used as model organisms in laboratories and have been used in space missions.^[106] They serve as service animals for disabled humans. Capuchin monkeys can be trained to assist quadriplegic humans; their intelligence, memory, and manual dexterity make them ideal helpers.^[107]

NHPs are kept in zoos around the globe. Historically, zoos were primarily a form of entertainment, but more recently have shifted their focus to conservation, education and research. Many zoos now feature naturalistic exhibits and educational material for the public; in the United States many participate in the Species Survival Plan (SSP), developed by the Association of Zoos and Aquariums (AZA), to maximize genetic diversity through captive breeding. Zoos and other animal welfare supporters generally oppose animal rights initiatives and the GAP's insistence that all NHPs be released from captivity for two primary reasons. First, captive-born primates lack the knowledge and experience to survive in the wild if released. Second, zoos provide living space for primates and other animals threatened with extinction in the wild.



Capuchin monkeys' manual dexterity is one reason they can assist quadriplegic humans.

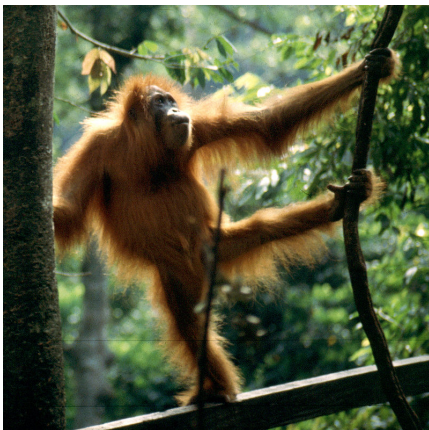
Role in scientific research

Thousands of non-human primates are used around the world in research because of their psychological and physiological similarity to humans.^{[108] [109]} In particular, the brains and eyes of NHPs more closely parallel human anatomy than those of any other animals. NHPs are commonly used in preclinical trials, neuroscience, ophthalmology studies, and toxicity studies. Rhesus Macaques are often used, as are other Macaques, African green monkeys, → chimpanzees, baboons, squirrel monkeys, and marmosets, both wild-caught and purpose-bred.^{[108] [110]} In 2005, GAP reported that 1,280 of the 3,100 NHPs living in captivity in the United States were used for experiments.^[100] In 2004, the European Union used around 10,000 NHPs in such experiments; in 2005 in Great Britain, 4,652 experiments were conducted on 3,115 NHPs.^[111] Governments of many nations have strict care requirements of NHPs kept in captivity. In the US, federal guidelines extensively regulate aspects of NHP housing,

feeding, enrichment, and breeding.^[112] European groups such as the European Coalition to End Animal Experiments are seeking a ban on all NHP use in experiments as part of the European Union's review of animal testing legislation.^[113]

Conservation

The International Union for Conservation of Nature (IUCN) lists more than a third of primates as critically endangered or vulnerable. Common threats to primate species include deforestation, forest fragmentation, monkey drives (resulting from primate crop raiding),^[114] and primate hunting for use in medicines, as pets, and for food. Large-scale tropical forest clearing is widely regarded as the process that most threatens primates.^{[115] [116] [117]} More than 90% of primate species occur in tropical forests.^{[116] [118]} The main cause of forest loss is clearing for agriculture, although commercial logging, subsistence harvesting of timber, mining, and dam construction contribute to tropical forest depletion too.^[118] In Indonesia large areas of lowland forest have been cleared to increase palm oil production, and one analysis of satellite imagery concluded that during 1998 and 1999 there was a loss of 1,000 Sumatran Orangutans per year in the Leuser Ecosystem alone.^[119]



Critically endangered Sumatran Orangutan

Primates with a large body size (over 5 kg) have an increased extinction risk due to their increased profitability to poachers compared to smaller primates.^[118] They reach sexual maturity later than other animals and have a longer period between births. Populations therefore have a slower recovery time after the loss of members to poaching or the pet trade.^[120] Data for some African cities show that half of all protein consumed in urban areas comes from the bushmeat trade.^[121] Endangered primates such as guenons and the Drill are hunted at levels that far exceed sustainable levels.^[121] This is due to their large body size, ease of transport and profitability per animal.^[121] As farming encroaches on forest habitats, primates feed on the crops, causing the farmers large economic losses.^[122] Primate crop raiding gives locals a negative impression of primates, hindering conservation efforts.^[123]

Madagascar, home to five endemic primate families, has experienced the greatest extinction of the recent past; since human settlement 1,500 years ago, at least eight classes and fifteen species have become extinct due to hunting and habitat destruction.^[4] Among the primates wiped out were *Archaeoindris* (a lemur larger than a silverback gorilla) and the families Palaeopropithecidae and Archaeolemuridae.^[4]

In Asia, Hinduism, Buddhism, and Islam prohibit eating primate meat; however, primates are still hunted for food.^[118] Some smaller traditional religions allow the consumption of primate meat.^{[124] [125]} The pet trade and traditional medicine also increase demand for illegal hunting.^{[104] [126] [127]} The Rhesus Macaque, a model organism, was protected after overtrapping threatened its numbers in the 1960s; the program was so effective that the macaques are now seen as a pest throughout their range.^[117]

In Central and South America forest fragmentation and hunting are the two main problems for primates. Large tracts of forest are now rare in Central America.^{[115] [128]} This increases the amount of forest vulnerable to edge effects such as farmland encroachment, lower levels of humidity and a change in plant life.^{[129] [130]} Movement restriction results in a greater amount of inbreeding, which can cause deleterious effects leading to a population bottleneck, whereby a significant percentage of the population is lost.^{[131] [132]}



The critically endangered Cross River Gorilla

There are 21 critically endangered primates, 8 of which have remained on the IUCN's "The World's 25 Most Endangered Primates" list since the year 2000: the Silky Sifaka, Delacour's Langur, the White-headed Langur, the Gray-shanked Douc, the Tonkin Snub-nosed Langur, the Hainan Black Crested Gibbon, the Cross River Gorilla and the Sumatran Orangutan.^[133] Miss Waldron's Red Colobus was recently declared extinct when no trace of the subspecies could be found from 1993 to 1999.^[134] A few hunters have found and killed individuals since then, and the species' prospects remain bleak.^[135]

See also

- List of primates
- List of fossil primates
- Human evolution
- Arboreal theory
- Primates
- Simian shelf

Footnotes

- ^a Humans inhabit every continent if one includes the scientific and meteorological stations in Antarctica.
- ^b **Article 6:** Everyone has the right to recognition everywhere as a person before the law.^[136]

External links

- Primate Info Net^[137]
- Primates^[138] at Animal Diversity Web
- Primate Research Institute^[139], Kyoto University
- High-Resolution Cytoarchitectural Primate Brain Atlases^[140]
- EUPRIM-Net: European Primate Network^[141]
- PrimateImages: Natural History Collection^[142]

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From Old French or French *primat*, from a noun use of Latin *primat-*, from *primus* ("prime, first rank"). The English singular *primate* was derived via back-formation from the Latin inflected form. Linnaeus thought this the "highest" order of mammals
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Rwanda

<p>Republic of Rwanda <i>Repubulika y'u Rwanda</i> <i>République du Rwanda</i></p>		
 		
<p>Motto: <i>Ubumwe, Umurimo, Gukunda Igihugu</i> "Unity, Work, Patriotism"</p>		
<p>Anthem: "Rwanda nziza"</p>		
		
Capital (and largest city)		Kigali 1°57'S 30°4'E
Official languages		Kinyarwanda, French, English
Vehicular languages		Swahili
Demonym		Rwandan, Rwandese
Government		Republic
-	President	Paul Kagame
-	Prime Minister	Bernard Makuza
Independence		from Belgium
-	Date	July 1, 1962
Area		
-	Total	26,338 km ² (147th) 10,169 sq mi
-	Water (%)	5.3
Population		
-	2009 estimate	9,998,000 ^[1] (83rd)
-	2002 census	8,128,553

-	Density	379.6/km ² (29th) 983.2/sq mi
GDP (PPP)		2008 estimate
-	Total	\$10.004 billion ^[2]
-	Per capita	\$1,043 ^[2]
GDP (nominal)		2008 estimate
-	Total	\$4.459 billion ^[2]
-	Per capita	\$465 ^[2]
Gini (2003)		45.1 (medium)
HDI (2007)		0.460 (low) (167th)
Currency		Rwandan franc (RWF)
Time zone		CAT (UTC+2)
-	Summer (DST)	<i>not observed</i> (UTC+2)
Drives on the		right
Internet TLD		.rw
Calling code		250
¹ Estimates for this country explicitly take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality and death rates, lower population and growth rates, and changes in the distribution of population by age and sex than would otherwise be expected.		

The **Republic of Rwanda** (pronounced /ruːˈændə/ or /rəˈwɑːndə/ in English, [rwanda] or [rgwanda] in Kinyarwanda) is a small landlocked country in the Great Lakes region of east-central → Africa, bordered by Uganda, Burundi, the Democratic Republic of the Congo and Tanzania. Home to approaching 10 million people, Rwanda supports the densest population in continental Africa, most of whom engage in subsistence agriculture. A verdant country of fertile and hilly terrain, the small republic bears the title "Land of a Thousand Hills" (French: *Pays des Mille Collines*; Kinyarwanda: *Igihugu cy'Imisozi Igihumbi*).

The country has received considerable international attention due to its 1994 genocide, in which between 800,000 and one million people were killed.^[3] In 2008, Rwanda became the first country in history to elect a national legislature in which a majority of members were women.^[4] Three quarters of the population live below the international poverty line of US\$1.25 a day.^[5]

History

It is unknown when the territory of present day Rwanda was first inhabited, but it is thought that humans moved into the area following the last ice age either in the Neolithic period, around ten thousand years ago, or in the long humid period which followed, up to around 3000 BC.^[6] ^[7] Archaeological excavations have revealed evidence of sparse settlement by hunter gatherers in the late stone age, followed by a larger population of early Iron age settlers, who produced dimpled pottery and iron tools.^[6] ^[8] ^[9] These early inhabitants were the ancestors of the Twa, a group of aboriginal Pygmy hunter-gatherers, who still live in Rwanda today.^[6]

Eventually these settlers were joined by Bantu farmers from the west, known as the Hutus.^[6] The exact dates of this are not certain, with estimates varying from 700 BC up to the beginning of the Christian era, around 1 AD.^[6] ^[10] ^[11] The Hutus, with their sedentary farming lifestyle, soon outnumbered the Twas and began to take over their traditional hunting grounds, forcing them to retreat into the forests.^[12]

Later a third group, the cattle-raising Tutsi, migrated to the area. The Tutsi were generally taller than the Hutus and the Twas, and were distinct in physical appearance.^[12] ^[13] It is not known when the Tutsi arrived and from where they came, but there is evidence that they were of Cushitic origin, coming from the Horn of Africa.^[13] Over time, the distinction between the three groups became blurred and some sources question whether they are truly of separate racial or ethnic stock.^[14]

Considerable controversy surrounds the origins and the organization of Rwandan society before the arrival of Europeans, however, and the Rwandan government disputes European historical records and scientific evidence of migrations and cultural society within the region.^[15] Even in pre-colonial Rwanda, however, the Kinyarwanda language was widely spoken. A traditional local justice system called *Gacaca* predominated in much of the region as an institution for resolving conflict and rendering justice. The Tutsi king (mwami) became the ultimate judge and arbiter for those cases over which he had jurisdiction. Through this system, stability was achieved in large areas of what is now Rwanda.^[16]

Colonial era

After signing treaties with chiefs in the Tanganyika region in 1884-1885, Germany claimed Tanganyika, Rwanda and Burundi as its own territory. Count von Götzen met the Tutsi Mwami (king) for the first time in 1894. However, with only 2,500 soldiers in East Africa, Germany did little to change societal structures in much of the region, especially in Rwanda. After the Mwami's death in 1895, a period of unrest followed. Germans and missionaries then began to enter the country from Tanganyika in 1897-98..

By 1899 the Germans exerted some influence by placing advisors at the courts of local chiefs. Much of the Germans' time was spent fighting uprisings in Tanganyika, especially the Maji Maji war of 1905-1907. On May 14, 1910 the European Convention of Brussels fixed the borders of Uganda, Belgian Congo, and German East Africa which included Tanganyika and Ruanda-Urundi.^[17] In 1911, the Germans helped the Tutsi put down a rebellion of Hutus in the northern part of Rwanda who did not wish to submit to central Tutsi control.

In 1916, during World War I, Belgian forces advanced from the Congo into Germany's East African colonies. After Germany lost the War, Belgium accepted the League of Nations Mandate of 1923 to govern Ruanda-Urundi along with the Congo, while Great Britain accepted Tanganyika and other German colonies. After World War II Ruanda-Urundi became a United Nations (UN) "trust territory" administered by Belgium. The Belgian involvement in the region was far more direct than German involvement and extended its interests into education and agricultural supervision. The latter was especially important in the face of two droughts and subsequent famines in 1928-29 and in 1943. These famines forced large migrations of Rwandans to neighboring Congo.^[18] In 1933 ethnic identification cards were used to classify one's ethnicity.

The Belgian colonizers also accepted the existing class system, featuring a minority Tutsi upper class and lower classes of Hutus and Tutsi commoners. However, in 1926 the Belgians abolished the local posts of "land-chief", "cattle-chief" and "military chief," and in doing so they stripped the Hutu of their limited local power over land. In the 1920s, under military threat, the Belgians finally helped to bring the northwest Hutu kingdoms, who had maintained local control of land not subject to the Mwami, under the Tutsi royalty's central control.^[19] These two actions disenfranchised the Hutu. Large, centralized land holdings were then divided into smaller chiefdoms.^[20]

The fragmenting of Hutu lands angered Mwami Yuhi IV, who had hoped to further centralize his power enough to rid himself of the Belgians. In 1931 Tutsi plots against the Belgian administration resulted in the Belgians deposing the Tutsi Mwami Yuhi. This caused the Tutsis to take up arms against the Belgians, but because of their fear of the Belgians' military superiority, they did not openly revolt.^[21]

The Roman Catholic Church and Belgian colonial authorities considered the Hutus and Tutsis different ethnic races based on their physical differences and patterns of migration. However, because of the existence of many wealthy Hutu who shared the financial (if not physical) stature of the Tutsi, the Belgians used an expedient method of classification based on the number of cattle a person owned. Anyone with ten or more cattle was considered a

member of the aristocratic Tutsi class. From 1935 on, "Tutsi", "Hutu" and "Twa" were indicated on identity cards. The Roman Catholic Church, being the primary educator in the country, subscribed to and reinforced the differences between Hutu and Tutsi, developing separate educational systems for each. In the 1940s and 1950s the vast majority of students were Tutsi. In 1943, Mwami Mutari III became the first Tutsi monarch to convert to Catholicism.

The Belgian colonialists continued to depend on the Tutsi aristocracy to collect taxes and enforce Belgian policies. It maintained the dominance of the Tutsi in local colonial administration and expanded the Tutsi system of labor for colonial purposes. The United Nations later decried this policy and demanded a greater self-representation of the Hutu in local affairs. In 1954 the Tutsi monarchy of Ruanda-Urundi demanded independence from Belgian rule. At the same time it agreed to abolish the system of indentured servitude (*ubuhake* and *uburetwa*) the Tutsis had practiced over the Hutu until then.

In the 1950s and early 1960s, a wave of Pan-Africanism swept through Central Africa, with leaders such as Julius Nyerere in Tanzania and Patrice Lumumba in the Congo. Anti-colonial sentiment stirred throughout central Africa, and a socialist platform of African unity and equality for all Africans was forwarded. Nyerere himself wrote about the elitism of educational systems,^[22] which Hutus interpreted as an indictment of the elitist educations provided for Tutsis in their own country.

Encouraged by the Pan-Africanists, Hutu advocates in the Catholic Church, and by Christian Belgians (who were increasingly influential in the Congo), Hutu sentiment against the aristocratic Tutsi was increasingly inflamed. The United Nations mandates, the Tutsi overlord class, and the Belgian colonialists themselves added to the growing unrest. The Hutu "emancipation" movement was soon spearheaded by Gregoire Kayibanda, founder of PARMEHUTU, who wrote his "Hutu Manifesto" in 1957. The group quickly became militarized. In reaction, in 1959 the UNAR party was formed by Tutsis who desired an immediate independence for Ruanda-Urundi, to be based on the existing Tutsi monarchy. This group also became quickly militarized. Skirmishes began between UNAR and PARMEHUTU groups. Then in July 1959, the Tutsi Mwami (King) Mutara III Charles was believed by Rwandan Tutsis to have been assassinated when he died following a routine vaccination by a Flemish physician in Bujumbura. His younger half-brother then became the next Tutsi monarch, Mwami (King) Kigeli V.

In November 1959, Tutsi forces beat up a Hutu politician, Dominique Mbonyumutwa, and rumors of his death set off a violent backlash against the Tutsi known as "the wind of destruction." Thousands of Tutsis were killed and many thousands more, including the Mwami, fled to neighboring Uganda before Belgian commandos arrived to quell the violence. Several Belgians were subsequently accused by Tutsi leaders of abetting the Hutus in the violence. Tutsi refugees also fled to the South Kivu province of the Congo, where they called themselves *Banyamulenge*. They eventually became a primary force in the First and Second Congo Wars.

In 1960, the Belgian government agreed to hold democratic municipal elections in Rwanda-Urundi, in which Hutu representatives were elected by the Hutu majorities. This precipitous change in the power structure threatened the centuries-old system by which Tutsi superiority had been maintained through monarchy. An effort to create an independent Rwanda-Urundi with Tutsi-Hutu power sharing failed, largely due to escalating violence. The Belgian government, with UN urging, therefore decided to divide Rwanda-Urundi into two separate countries, Rwanda and Burundi. Each had elections in 1961 in preparation for independence.

In 1961, Rwandans voted, by referendum and with the support of the Belgian colonial government, to abolish the Tutsi monarchy and instead establish a republic. Dominique Mbonyumutwa, who had survived his previous attack, was named the first president of the transitional government. This attack was the pretext used to explain that Tutsis were dangerous and had to be killed. Burundi, by contrast, established a constitutional monarchy, and in the 1961 elections leading up to independence, Louis Rwagasore, the son of the Tutsi Mwami and a popular politician and anti-colonial agitator, was elected as Prime Minister. However, he was soon assassinated. The monarchy, with the aid of the military, therefore assumed control of the country, and allowed no further elections until 1965.

Between 1961 and 1962, Tutsi guerrilla groups staged attacks into Rwanda from neighboring countries. Rwandan Hutu-based troops responded and thousands more were killed in the clashes.

On July 1, 1962, Belgium, with UN oversight, granted full independence to the two countries. Rwanda was created as a republic governed by the majority Party of the Hutu Emancipation Movement (PARMEHUTU), which had gained full control of national politics by this time. In 1963, a Tutsi guerrilla invasion into Rwanda from Burundi unleashed another anti-Tutsi backlash by the Hutu government in Rwanda, and an estimated 14,000 people were killed. In response, a previous economic union between Rwanda and Burundi was dissolved and tensions between the two countries worsened. Rwanda also now became a Hutu-dominated one-party state. In excess of 70,000 people had been killed. It was thought for a while that British Royal Marines then stationed in Tanzania might be sent to Rwanda to stop the horrific loss of life there.

Post-independence

Gregoire Kayibanda, founder of PARMEHUTU (and a Hutu) was the first president (from 1962 to 1973), followed by Juvenal Habyarimana (who was president from 1973 to 1994). The latter, also a Hutu (from the northwest of Rwanda), took power from Kayibanda in a 1973 coup, claiming the government to have been ineffective and riddled with favoritism. He installed his own political party into government. This occurred partially as a reaction to the Burundi genocide of 1972, with the resultant wave of Hutu refugees and subsequent social unrest. Rwanda enjoyed relative economic prosperity during the early part of his regime.



Juvénal Habyarimana during a visit to the United States, 1980

Inter-relationship with events in Burundi

The situation in Rwanda had been influenced in great detail by the situation in Burundi. Both countries had a Hutu majority, yet an army-controlled Tutsi government in Burundi persisted for decades. After the assassination of Rwagasore, his UPRONA party was split into Tutsi and Hutu factions. A Tutsi Prime Minister was chosen by the monarch, but, a year later in 1963, the monarch was forced to appoint a Hutu prime minister, Pierre Ngendandumwe, in an effort to satisfy growing Hutu unrest. Nevertheless, the monarch soon replaced him with another Tutsi prince. In Burundi's first elections following independence, in 1965, Ngendandumwe was elected Prime Minister. He was immediately assassinated by a Tutsi extremist and he was succeeded by another Hutu, Joseph Bamina. Hutus won 23 of the 33 seats in national elections a few months later, but the monarch nullified the elections. Bamina was soon also assassinated and the Tutsi monarch installed his own personal secretary, Leopold Biha, as the Prime Minister in his place. This led to a Hutu coup from which the Mwami fled the country and Biha was shot (but not killed). The Tutsi-dominated army, led by Michel Micombero brutally responded: almost all Hutu politicians were killed.^[23] Micombero assumed control of the government and a few months later deposed the new Tutsi monarch (the son of the previous monarch) and abolished the role of the monarchy altogether. He then threatened to invade Rwanda.^[24] A military dictatorship persisted in Burundi for another 27 years, until the next free elections, in 1993.

Another seven years of sporadic violence in Burundi (from 1965 - 1972) existed between the Hutus and Tutsis. In 1969 another purge of Hutus by the Tutsi military occurred. Then, a localized Hutu uprising in 1972 was fiercely answered by the Tutsi-dominated Burundi army in the largest Burundi genocide of Hutus, with a death toll nearing 200,000.

This wave of violence led to another wave of cross border refugees into Rwanda of Hutus from Burundi. Now there were large numbers of both Tutsi and Hutu refugees throughout the region, and tensions continued to mount.

In 1988, Hutu violence against Tutsis throughout northern Burundi again resurfaced, and in response the Tutsi army massacred approximately 20,000 more Hutu. Again thousands of Hutu were forced into exile into Tanzania and Congo to flee another genocide of Hutu.

Civil war and genocide

The Rwandan Genocide was the 1994 mass killing of hundreds of thousands of Rwanda's Tutsis and Hutu political moderates by Hutus under the Hutu Power ideology. Over the course of approximately 100 days, from the assassination of Juvénal Habyarimana on 6 April through mid-July, at least 500,000 people were killed. Most estimates indicate a death toll between 800,000 and 1,000,000.

The beginnings of the genocide are to be found in the 1980s. In 1986, Yoweri Museveni's guerrilla forces in Uganda had succeeded in taking control of the country, overthrowing the Ugandan dictatorship of Milton Obote. Many exiled refugee Rwandan Tutsis in Uganda had joined its rebel forces and had then become part of the Ugandan military, now made up from Museveni's guerrilla forces. However, Ugandans resented the Rwandan presence in the new Ugandan army, and in 1986 Paul Kagame, a Tutsi who had become head of military intelligence in Museveni's new Ugandan army, founded the RPF, the Rwandan Patriotic Front, together with Fred Rwigema. They began to train their army to invade Rwanda from Uganda, and many Tutsis who had been in the Ugandan military now joined the RPF. Kagame also received military training in the United States. In 1991, a radio station broadcasting RPF propaganda from Uganda was established by the RPF.

In 1990, the Tutsi-dominated RPF invaded Rwanda from Uganda. Some members allied with the military dictatorship government of Habyarimana responded in 1993 to the RPF invasion with a radio station that began anti-Tutsi propaganda and with programs against Tutsis, who it claimed were trying to re-enslave the Hutus. Nevertheless, after 3 years of fighting and multiple prior "cease-fires," the government and the RPF signed a "final" cease-fire agreement in August 1993, known as the Arusha accords, in order to form a power sharing government. Neither side appeared ready to accept the accords, however, and fighting between the two sides continued unabated. By that time, over 1.5 million civilians had left their homes to flee the selective massacres against Hutus by the RPF army. They were living in camps, the most famous of which was called Nyacyonga.

The situation worsened when the first elected Burundian president, Melchior Ndadaye, a Hutu, was assassinated by the Burundian Tutsi-dominated army in October 1993.^[25] In Burundi, a fierce civil war then erupted between Tutsi and Hutu following the army's massacre, and tens of thousands, both Hutu and Tutsi, were killed in this conflict. This conflict spilled over the border into Rwanda and caused the fragile Rwandan Arusha accords to quickly crumble. Tutsi-Hutu hatred rapidly intensified, and a UN-sent peacekeeping force, the United Nations Assistance Mission for Rwanda (UNAMIR) was unable to calm down tensions.

During the armed conflict in Rwanda, the RPF was blamed for the bombing of the capital Kigali. On April 6, 1994, the Hutu president of Rwanda and the second newly elected president of Burundi (also a Hutu) were both assassinated when their jet was shot down.

In response to the April killing of the two presidents, over the next three months (April - July 1994) the Hutu-led military and Interahamwe militia groups killed about 800,000 Tutsis and Hutu moderates in the Rwandan genocide. The Tutsi-led RPF continued to advance on the capital, however, and soon occupied the northern, eastern, and southern parts of the country by June.

First and Second Congo Wars

In this invasion Kagame allied with Laurent Kabila, a revolutionary in Eastern Zaire who had been a foe of Zaire's long-time dictator, Mobutu Sese Seko. In addition to Rwandan forces, Laurent Kabila's AFDL forces were also supported by Ugandan forces (with whom Kagame had trained in the late 1980s), which then invaded Eastern Zaire from the northeast. This became known as the First Congo War.

In this war, militarized Tutsi elements in the South Kivu area of Zaire (bordering Burundi), known as Banyamulenge to disguise their original Tutsi heritage, allied with the Tutsi RDF forces against the Hutu refugees in the North Kivu area (bordering Rwanda), which included the Hutu Interahamwe militias.

In the midst of this conflict, Kabila, whose primary intent had been to depose Mobutu, moved his forces to Kinshasa, and in 1997, the same year Mobutu Sese Seko died of prostate cancer, Kabila captured Kinshasa and then became president of Zaire (which he then renamed to the Democratic Republic of the Congo). With Kabila's success in the Congo, he no longer desired an alliance with the Tutsi-RPF Rwandan army and the Ugandan forces, and in August 1998 ordered both the Ugandans and Tutsi-Rwandan army out of the DRC. However, neither Kagame's Rwandan Tutsi forces nor Museveni's Ugandan forces had any intention of leaving the Congo, and the framework of the Second Congo War was laid.



Refugee camp in Zaire, 1994

During the Second Congo War, Tutsi militias among the Banyamulenge in the Congo province of South Kivu desired to annex themselves to Rwanda (now dominated by Tutsi forces under the Kagame government). Kagame also desired this, both to increase the resources of Rwanda by adding those of the Kivu region, and also to add the Tutsi population, which the Banyamulenge represented, back into Rwanda, thereby reinforcing his political base and protecting the indigenous Tutsis living there, who had also suffered from ongoing battles with the Interhamwe.

In the Second Congo War, Uganda and Rwanda attempted to wrest much of the Democratic Republic of the Congo from Kabila's

forces, and nearly succeeded. However, the DRC was a member of the regional SADC (Southern Africa Development Community), so President Laurent Kabila asked for the assistance of SADC armies friendly to Kabila, most notably those of Angola and Zimbabwe. These armies were able to beat back Kagame's Rwandan-Tutsi advances and the Ugandan forces. As this happened, some 700,000 Tutsi Banyamulenge fled to Rwanda and were repatriated there.

In the great conflict between 1998 and 2002, during which time Congo was divided into three parts, multiple opportunistic militias, called Mai Mai, sprang up, supplied by the arms dealers around the world that profit in small arms trading (including the US, Russia, China, and other countries). These militias were most active in the South and North Kivu provinces (in which most refugees were located) and took advantage of the conflict to settle local scores (including Hutu/Tutsi rivalries) and widen the conflict, battling each other, Ugandan and Rwandan forces, and even Congolese forces. Over 5.4 million people died in the conflict, as well as the majority of animals in the region.

In 2001 Laurent Kabila was assassinated in the DRC (Congo), and he was succeeded by his son, Joseph Kabila. Educated in Tanzania and Uganda in his earlier years, Joseph had completed his military training in China. He had served as both the officer in charge of the rebel forces that had defeated Mobutu's army and of the Congolese forces that subsequently pushed the Ugandan and Rwandan armies out of the Congo (with the help of the SADC coalition).

The Second Congo War ended when a ceasefire was signed in Sun City (South Africa) and elections in a now-unified Congo were decided upon after an additional transitional period. (After serving as president for 5 transitional years, Joseph Kabila won the presidential elections in 2006, largely based on his support in the Eastern Congo.)

Rwandan RPF troops finally left the Eastern Congo in 2002, leaving a wake of disease and malnutrition that continued to kill an estimated 45,000 people every month. However, Rwandan rebels continue to operate (as of June 2009) in the northeast Congo and Kivu regions. These were claimed to be remnants of Hutu forces that were not allowed to return to Rwanda^[26] without facing genocide charges, yet were not welcomed in Congo and were pursued by DRC troops.^[27] In the first 6 months of 2007, over 260,000 civilians were displaced.^[28] However, Tutsi Banyamulenge rebel groups also continued to operate in the region. Congolese Mai Mai rebels threatened both people and wildlife.^[29] Although a large scale effort at disarming militias largely succeeded in 2007, with the aid of the UN troops, fierce confrontations in the northeast regions of the Congo between local tribes (initially uninvolved with the Hutu-Tutsi conflict but drawn into the Second Congo War) persisted in the Ituri region. Further, between 2007 and 2009, ongoing battles between Hutu rebel groups and Tutsi rebel groups continued in the North and South Kivu regions of the Congo, despite an amnesty for remaining militias that was passed by the Congo government in an attempt to end such skirmishes. In early 2009, a major Tutsi rebel (Banyamulenge) commander, Laurent Nkunda, wanted for war crimes in the Congo, took refuge in Rwanda after being "captured" by the Rwandan army in early 2009.

In Burundi, the Burundi Civil War from 1993 to 2006 coincided with the First and Second Congo Wars. At least 300,000 Burundians were killed, and refugees into Tanzania and Congo contributed to the region's major population displacements. In August 2005, a Hutu born-again Christian, Pierre Nkurunziza, was elected as Burundi president. At least three cease-fires between rebel groups and Burundi forces, in 2003, 2005, and September 2006, have been signed.

Rwandan stability is undoubtedly dependent both on stability in Eastern DRC (Congo) and in Burundi.

Post-civil war

After the Tutsi RPF took control, Kagame installed a Hutu president, Pasteur Bizimungu, in 1994. Many believed him to be a puppet president, however, and when Bizimungu became critical of the Kagame government in 2000, he was removed as president and Kagame took over the presidency himself. Bizimungu immediately founded an opposition party (the PDR), but it was banned by the Kagame government. Bizimungu was arrested in 2002 for treason, sentenced to 15 years in prison, but released by a presidential pardon in 2007.

After it took control of the government in 1994 following the civil war, the Tutsi-dominated RDF party then wrote the history of the genocide and enshrined its version of events in the current constitution of 2003. It made it a crime to question the government's version of the genocide.^[30] In 2004, a ceremony was held in Kigali at the Gisozi Memorial (sponsored by the Aegis Trust and attended by many foreign dignitaries) to commemorate the tenth anniversary of the genocide, and the country observes a national day of mourning each year on April 7. Hutu Rwandan genocidal leaders are on trial at the International Criminal Tribunal for Rwanda, in the Rwandan National Court system, and, most recently, through the informal Gacaca village justice program.^[31] Recent reports highlight a number of reprisal killings of survivors for giving evidence at Gacaca.^[32]

Some have made claims that the memorialisation of the genocide without admission of the crimes by the Tutsi-RDF are one sided, and is part of ongoing propaganda by the Tutsi-led Rwandan government, which is essentially a one-party government at this time.^[33] The hero depicted in the movie *Hotel Rwanda*, Paul Rusesabagina, has demanded that Paul Kagame, the current Rwandan president, be tried as a war criminal.^[34]

The first elections since the invasion of Rwanda by Kagame's forces in 1990 (and the subsequent creation of a military government by Kagame in 1994) were held in 2003. Kagame, who had already been appointed president by his own government in 2000, was then elected president by over 95% of the vote, with little opposition. Opposition parties were banned until just before the 2003 elections. Following the elections, in 2004, a constitutional amendment banned political parties from denoting themselves as being aligned with "Hutu" or "Tutsi." However, the RPF, a primarily Tutsi political organisation, was not disbanded and therefore continues its dominance. Most observers therefore do not believe the 2003 elections to have been fair nor representative.^[35] Elections have been

compared to the "fair elections" of Robert Mugabe's ZANU-PF party in Zimbabwe. The next presidential elections are due to be held in 2010.

In 2008, parliamentary elections were held, but no opposition parties participated; only a coalition of parties loyal to the RPF participated, continuing an effective one-party rule in Rwanda.

Rebuilding

Rwanda today struggles to heal and rebuild, but shows signs of rapid development.^[36]

The major markets for Rwandan exports are Belgium, Germany, and People's Republic of China. In April 2007, an investment and trade agreement, four years in the making, was worked out between Belgium and Rwanda. Belgium contributes €25-35 million per year to Rwanda.^[37] Belgian co-operation with the Ministry of Agriculture and Animal Husbandry continues to develop and rebuild agricultural practices in the country. It has distributed agricultural tools and seed to help rebuild the country. Belgium also helped in re-launching fisheries in Lake Kivu, at a value of US\$470,000, in 2001.^[38]

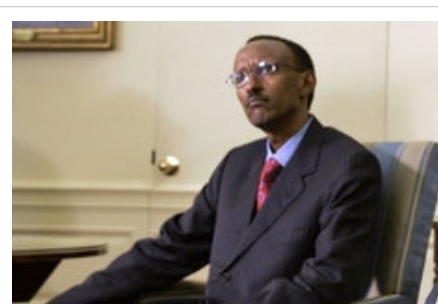
In Eastern Rwanda, The Clinton Hunter Development Initiative, along with Partners in Health, are helping to improve agricultural productivity, improve water and sanitation and health services, and help cultivate international markets for agricultural products.^[39]^[40]

Since 2000, the Rwandan government has expressed interest in transforming the country from agricultural subsistence to a knowledge-based economy, and plans to provide high-speed broadband across the entire country.^[41]

Politics

After its military victory in July 1994, the Rwandan Patriotic Front organized a coalition government loosely based on the 1993 Arusha accords. The National Movement for Democracy and Development (Habyarimana's party that was accused of instigating and implementing the genocidal ideology) and the CDR (another national Hutu party) were banned, with most of its leaders either arrested or forced into exile. It is not clear whether any Hutu parties are currently allowed in Rwanda. After the 1994 genocide, the RPF installed a single-party "coalition-based" government. Paul Kagame became Vice-President. In 2000, he was elected president of Rwanda by the single-party parliament.

A new constitution, written by the Kagame government, was then adopted by referendum in 2003. The first post-war presidential and legislative elections were held in August and September 2003, respectively. Opposition parties were banned until just before the elections, so no true opposition to the ruling RPF existed. The stated RPF-led government goals were to promote reconciliation and unity among all Rwandans through the new constitution by forbidding any political activity or discrimination based on race, ethnicity or religion. Right of return to Rwandans displaced between 1959 and 1994, primarily Tutsis, was enshrined in the constitution, but no mention of the return of Hutus that fled Kagame's RPF forces into the Congo in the great refugee crisis of 1994-1998 or subsequently, is made in the constitution. Nevertheless, the constitution guarantees "All persons originating from Rwanda and their descendants shall, upon their request, be entitled to Rwandan nationality" and "No Rwandan shall be banished from the country."^[30]



President Paul Kagame in 2006

By law, at least a third of the Parliamentary representation must be female. In the parliamentary election of September 2008, 56% of seats were won by women.^[42]

The Senate has at least 26 members, each with a term of eight years. Eight posts are appointed by the president. 12 are elected representatives of the former 11 provinces and the city of Kigali. Four members are designated by the

Forum of Political Organizations (a quasi-governmental organization that currently is an arm of the dominant political party); one member is a university lecturer or researcher elected by the public universities; one member is a university lecturer or researcher elected by the private universities. Any past President has permanent membership in the Senate. Under this scheme, up to 12 appointees to the Senate are appointed by the President and his party. The elected members must be approved by the Supreme Court. The 14 Supreme Court members are designated by the President and confirmed by the Senate. The Chamber of Deputies has 80 members, each with a 5 year term; 24 posts are reserved for women and are elected by province; 53 posts can be men or women and are also are elected by local elections; 2 posts are elected by the National Youth Council; 1 post is elected by Federation of the Associations of the Disabled.

The President and the Speaker of the Chamber of Deputies must be from different political parties. The President is elected every seven years, and may serve a maximum of two terms. In 2006, however, the structure of the country was reorganized. It is unclear how this affects current elected representation proportions.

The current Rwandan government, led by Paul Kagame, has been praised by many for establishing security and promoting reconciliation and economic development, but is also criticized by some for being overly militant and opposed to dissent. The country now has many international visitors and is regarded as a safer place for tourists, with only a single isolated mortar attack in early 2007 around Volcanoes National Park near Gisenyi.^[43]

With new independent radio stations and other media arising, Rwanda is attempting a free press, but there are reports of journalists disappearing and being apprehended whenever articles question the government.^{[44] [45]} The transmitter for Radio France International was banned by the government in Rwanda in 2006 when it became critical of Kagame and the RPF.

Administrative divisions

Rwanda is divided into five provinces (*intara*) and subdivided into thirty districts (*akarere*). The provinces are:

- North Province
- East Province
- South Province
- West Province
- Kigali Province

Prior to 1 January 2006, Rwanda was composed of twelve provinces (known as prefectures up to 2001), but these were abolished in full and redrawn as part of a program of decentralization and reorganization.



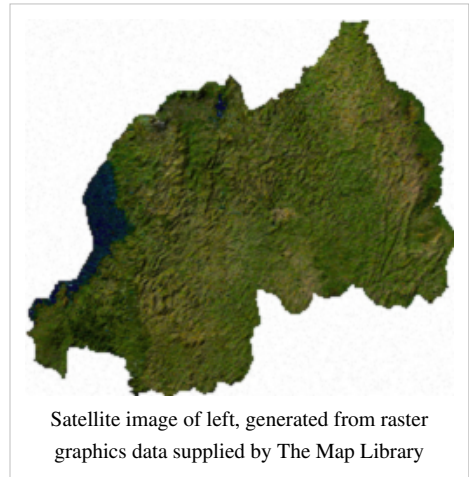
Geography

This small country, slightly smaller than the US state of Massachusetts or half the size of Scotland, is located near the center of Africa, a few degrees south of the Equator. It is separated from the Democratic Republic of the Congo by Lake Kivu and the Ruzizi River valley to the west; it is bounded on the north by Uganda, to the east by Tanzania, and to the south by Burundi. The capital, Kigali, is located in the center of the country.

Rwanda's countryside is covered by grasslands and small farms extending over rolling hills, with areas of rugged mountains that extend southeast from a chain of volcanoes in the northwest. The divide between the Congo and Nile drainage systems extends from north to south through western Rwanda at an average elevation of almost 9000 feet (2743 m).

On the western slopes of this ridgeline, the land slopes abruptly toward Lake Kivu and the Ruzizi River valley, and constitutes part of the Great Rift Valley. This western section of the country lies within the Albertine Rift montane forests ecoregion.

The eastern slopes are more moderate, with rolling hills extending across central uplands at gradually reducing altitudes, to the plains, swamps, and lakes of the eastern border region. Therefore the country is also fondly known as "Land of a Thousand Hills" (*Pays des mille collines*). In 2006, a British-led exploration announced that they had located the longest headstream of the River Nile in Nyungwe Forest.^[46]



Satellite image of left, generated from raster graphics data supplied by The Map Library



The Nyabarongo river flowing through Rwanda to Lake Victoria and the Nile river.

Transport

The transport system in Rwanda centres primarily around the road network, with paved roads between the capital, Kigali and most other major cities and towns in the country.^[47] Rwanda is also linked by road to other countries in East Africa, notably to the port of Mombasa via Kampala and Nairobi, which provides Rwanda's most important trade route.^[48] The country has an international airport at Kigali, serving one domestic and several international destinations.^[49] ^[50] There is no public water transport between the port cities on Lake Kivu, although a limited private service exists.^[51] A large amount of investment in the transport infrastructure has been made by the government since the 1994 genocide, with aid from the USA, European Union, Japan and others.



Rwandair Express, Kigali International Airport,
Rwanda.

The principal form of public transport in the country is share taxi, with express routes linking the major cities and local services serving most villages along the main roads of the country. Coach services are available to various destinations in neighbouring countries.

In 2006, the Chinese government proposed funding a study for the building of a railway link from Bujumbura in Burundi to Kigali in Rwanda to Isaki in Tanzania.^[52] A delegation from the American railroad BNSF also met with President Paul Kagame to discuss a route from Kigali to Isaka and at the same time the government announced that it had selected a German consulting company to undertake pilot work for the proposed rail line.^[53]

Communications

The use of fixed telephone landlines is not widespread in the country.

Internet cafes exist, and generally provide cheap but slow connections.

The postal system is mostly reliable. Those wishing to receive post must register and pay for annually, a Post Office Box at the Post Office.

There is one national television station: Rwanda Television which broadcasts feeds from various international broadcasters during the day. The evening programming largely consists of locally produced news programming repeated in Kinyarwanda, English and French.

Subscription based satellite television is easily available; particularly in Kigali. There is currently only one operator: South African based DSTV.



Kigali International Airport

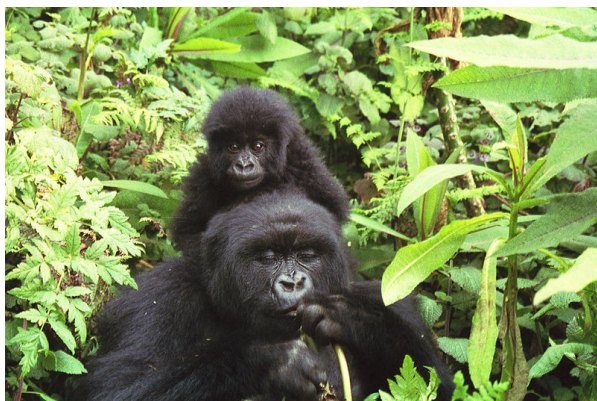
Economy

Rwanda's economy suffered heavily during the 1994 genocide, with widespread loss of life, failure to maintain the infrastructure, looting and neglect of important cash crops causing a large drop in GDP and destroying the country's ability to attract private and external investment.^[54] The country has since strengthened, with per-capita GDP (PPP) estimated at \$951 in 2008,^[55] compared with just \$390 in 1994.^[56] Major export markets include China, Germany and the United States.^[54] The currency is the Rwandan franc and the economy is managed by the central National Bank of Rwanda, although Rwanda recently joined the East African Community and there are plans for a common East African shilling, which could be in place by 2010.^[57]

Rwanda is a country of few natural resources, and the economy is based mostly on semi-subsistence agriculture by local farmers using simple tools.^[58] An estimated 90% of the working population farms, and agriculture comprised an estimated 39.4% of GDP in 2006.^[54] Since the mid 1980s, farm sizes and food production have been decreasing, due in part to the resettlement of displaced people.^[59] ^[60] Thus despite Rwanda's fertile ecosystem, food production often does not keep pace with population growth, requiring food imports.^[54] Crops grown in the country include coffee, tea, pyrethrum, bananas, beans, sorghum and potatoes. Coffee and tea are the major cash crops for export, with the high altitudes, steep slopes and volcanic soils providing favourable conditions. Reliance on agricultural exports makes Rwanda vulnerable to shifts in their prices.^[61]

Livestock are raised throughout the country, with animal husbandry contributing around 8.8% of GDP in 2006.^[62] Animals raised in Rwanda include cows, goats, sheep, pigs, chicken and rabbits, with geographical variation in the numbers of each.^[62] Production systems are mostly traditional, although there are a few intensive dairy farms around Kigali.^[62] Shortage of land, water shortage, insufficient and poor quality feed and regular disease epidemics with insufficient veterinary service are major constraints, restricting output in this sector. Fishing takes place on the country's lakes, but stocks are very depleted and live fish are now being imported in an attempt to revive the industry.^[63]

The industrial sector is small and uncompetitive.^[64] Products manufactured include cement, agricultural products, small-scale beverages, soap, furniture, shoes, plastic goods, textiles, cigarettes.^[54] Despite being a landlocked country of few natural resources, Rwanda's mining industry is an important contributor, generating US\$93 million in 2008.^[65] Minerals mined include cassiterite, wolfram, gold and coltan, which is used in the manufacture of electronic and communication devices such as mobile phones.^[65] ^[66]



The Mountain Gorilla is Rwanda's leading tourist attraction



Coffee, such as this bag of Maraba Coffee, is one of Rwanda's major cash crops.

Tourism is one of the fastest growing sectors and is now the country's leading foreign exchange earner, generating US\$214 million in 2008, up by 54% on the previous year.^[67] Despite the genocide, the country is increasingly perceived internationally as a safe destination,^[68] ^[69] and one million people are estimated to have visited the country in 2008, up from 826,374 in 2007.^[67] The country's most popular tourist activity is the tracking of mountain gorillas, which takes place in the Volcanoes National Park.^[68] ^[70]

Other attractions include Nyungwe Forest, home to →

chimpanzees, Ruwenzori colobus and other → primates,^[71] the resorts of Lake Kivu,^[72] and Akagera, a small savanna reserve in the east of the country.^[73] Each year in June, the country celebrates **Kwita Izina** - The Baby Mountain Gorilla Naming Ceremony. People come from all over the country and the world to participate in this unique event.

It has a low gross national product (GNP), and it has been identified as a Heavily Indebted Poor Country (HIPC). In 2005, its economic performance and governance achievements prompted International Funding Institutions to cancel nearly all its debts.

According to the World Food Program, it is estimated that 60% of the population live below the poverty line and 10-12% of the population suffer from food insecurity every year.^[64]

Land management is the single most important factor in the conflicts in the region. Although the feudal system of land use disappeared with the "Social Revolution" of 1959, sharecropping reappeared following the return of the RPF government in 1994, with the land use policies of the new RPF government being formalized in the 2005 land use laws.^[74] These land-use laws were meant to transform a jumble of small, fragmented, and minimally productive plots into more prosperous larger holdings producing for global (as well as for local) markets. The government is to determine how land holdings will be regrouped, which crops will be grown, and which animals will be raised. If farmers fail to follow the national plan, their land may be requisitioned with no compensation, and their land can be given to others.

Although a movement for individual ownership of land arose at the time of independence, land scarcity over much of Rwanda made this impractical over the long term. The current land reform system is somewhat similar to the "igikingi" system of land control that the Tutsi monarchy, and then the Belgian colonial government, used prior to the time leading up to independence. Northwest Rwanda had traditionally used a system of locally controlled land collectivization schemes, which were not under the Mwami's central control, called "ubokonde bw' isuka" in pre-colonial times. It is therefore the northwest of Rwanda that objects most strongly to the central control of land policy reminiscent of igikingi, taking control away from local owners. Some farmers who resisted the policy when it was begun in the 1990s were punished by fines or jail sentences; the policy remains the source of many disputes.^[75]

The law also affirms the policy of obligatory grouped residence under which persons living in dispersed homesteads must move to government-established "villages" called imidugudu. Instead of each family living on his own land, communal villages would be re-established, freeing up, presumably, more arable land. When implemented on a large-scale in the late 1990s, authorities in some cases used force, fines, and prison terms to make Rwandans relocate.

At least two imidugudu were created in northwestern Rwanda in 2005, leading to land loss for local farmers. Although the law claimed to accept the validity of customary rights to land, it rejected the customary use of marshlands by the poor and abolished important rights of prosperous landlords (abakonde) in the northwest.^[76]

However, the policy also ensured the ability of the government to exercise eminent domain for environmental reasons, which it did in 2007 by evicting encroaching settlers from the shores of Lake Kivu in an effort to protect the fragile environment there.^[77]

The government has also looked at ways to extract methane from Lake Kivu to help with the country's energy needs. The Capital Market Advisory Council [CMAC] of Rwanda was established in 2008. The monetary and financial markets are dominated by nine banks and six insurance companies in which the state continues to be a major shareholder.^[78] Over 200 micro-credit institutions (also known as micro-finance institutions), often financed by international donors, sprung up in Rwanda (especially since 2004), but many were unregistered, unregulated, and often mismanaged. Several were shut down by the Rwandan government in 2006.^[79] In September 2006, the World Bank approved a US\$10 million grant to Rwanda to develop information and communication technology.^[80]

Rwanda is part of the East African Community and a potential member of the planned East African Federation.

Demographics

Most Rwandans speak Kinyarwanda, one of the country's three official languages, and in market towns many people speak Swahili. Educated Rwandans speak French and about 5% (as of 2008) speak English. In 2008 the Rwandan government announced that English will become the co-official language of the nation, alongside Kinyarwanda and replacing French. They switched the language of education from French to English, and required government officials to learn it.^[81] This is partly an attempt to enable Rwanda to become a part of the global economic community—English and Swahili will be the principal languages of the East African Community,—but is

above all a result of a long-running feud between President Kagame and France over the apportioning of blame for the 1994 genocide.^[82] ^[83] Rwanda has applied for membership to the English-speaking Commonwealth of Nations.^[81] The ethnic breakdown of this nation of 10 million is roughly 84% Hutu, 15% Tutsi, and 1% Twa, with smaller minorities of South Asians, Arabs, French, British, and Belgians.^[84]



Rwandan children.

Religion in Rwanda ^[85]			
religion			percent
Roman Catholic			56.5%
Protestant			37.1%
Islam			4.6%
None			1.7%
Indigenous			0.1%

Most Rwandans are Christian, with significant changes since the genocide.

A 2006 study reported that 56.5 percent of the population were Catholic (with a 6.9% increase since the 2001 survey), 37.1 percent Protestant (of which 11.1 Adventists, and 14,000 Jehovah's Witnesses), 4.6 percent Muslim, 1.7 claimed no religious beliefs, and 0.1 percent practiced traditional indigenous beliefs.^[86]

Figures from 2001 survey were 49.6 % Catholic, 43.9 % Protestant, 4.6 % Muslim, 1.7 % no religious beliefs, and 0.1 % traditional indigenous beliefs. This represented a 19.9 percent increase in the number of Protestants, a 7.6 percent drop in the number of Catholics, and a 3.5 percent increase in the number of Muslims from the U.N. Population Fund survey in 1996.

There has been a proliferation of small, usually Christian-linked schismatic religious groups since the 1994 Genocide.^[85] The figures for Protestants include the growing number of members of Jehovah's Witnesses and evangelical Protestant groups. There also is a small population of Baha'is and Jews.^[87] ^[88]

The Muslim community may have grown in part because Muslims are suggested to have saved the lives of many Tutsis from Hutu attacks.^[89] ^[90] Some estimate the Muslim population of the country to be as high as 14%.^[89] ^[90] ^[91] ^[92]

According to the *World Refugee Survey 2008*, published by the U.S. Committee for Refugees and Immigrants, Rwanda hosted 54,200 refugees and asylum seekers in 2007. Approximately 51,300 refugees and asylum seekers were from the Democratic Republic of the Congo and 2,900 from Burundi.^[93]

Health

Fertility is at about six births per woman.^[94] HIV prevalence was at about 3 % of the 15-49 year olds in 2005.^[95] Public expenditure was at 4.3 % of the GDP in 2004, whereas private expenditure was 3.2 %.^[96] There were 5 physicians per 100,000 people in 2000-2004.^[97] Infant mortality was at 118 per 1,000 live births in 2005.^[98]

Education

Net primary enrolment rate was at 74 % in 2004.^[99] Public expenditure was at 3.8 % of the GDP in 2002-2005.^[100] A significant minority of the population of the adult population of the country are illiterate, particularly women.^[101] Public primary education has become fee-free.^[102] Kinyarwanda, French and English are taught generally.^[103] Rwanda has several universities.^[104]

See also

- History of Rwanda
- Rwandan Genocide
- Politics of Rwanda
- Geography of Rwanda
- Transport in Rwanda
- Economy of Rwanda
- Demographics of Rwanda
- Religion in Rwanda
- Rwandan parliamentary election, 2008

External links

Government

- The Republic of Rwanda^[105] official government site
- Chief of State and Cabinet Members^[106]

General

- Rwanda^[107] entry at *The World Factbook*
- Rwanda^[108] from *UCB Libraries GovPubs*
- Rwanda^[109] at the Open Directory Project
- Wikimedia Atlas of Rwanda

Travel

- Rwanda Tourism^[110] official Rwanda Tourism Board site
- Kwita Izina web site^[111] Kwita Izina -the Official Baby Gorilla Naming
- Airline web site UK^[112]

Ceremony site

- Rwanda travel guide from Wikitravel

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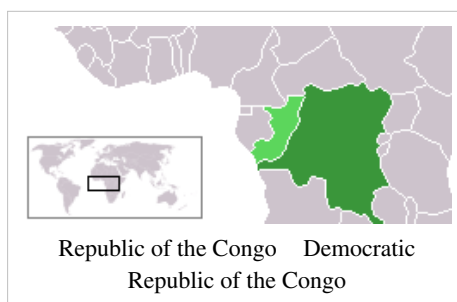
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Congo

Congo, Kongo and **Kongō** may refer to:

A river, and *two* countries in Africa



- Congo River
- Congo Basin (Congo region)
- Republic of the Congo (Congo-Brazzaville)
- Democratic Republic of the Congo (Congo-Kinshasa)
 - Congo Free State (1885–1908)
 - Belgian Congo (1908–1960)
 - Republic of the Congo (Léopoldville) (1960–1964)
 - Zaïre (1971–1997)

Also in Africa

- Kongo people (Congolese), an ethnic group in the two Congo states and Angola
- Kongo language (Kikongo), a Bantu language spoken in the Congo region
- Kingdom of Kongo (1400–1914), covering parts of present-day Angola and the two Congo states
- Kongo dia Nlaza (until late in the 16th century), a former kingdom absorbed by the Kingdom of Kongo
- Portuguese Congo, now the Angolan exclave of Cabinda
- M'banza-Kongo, the capital of Angola's northwestern Zaire province
- Kongo Central, the former Bas-Congo province, in the Democratic Republic of the Congo

Animal kingdom

- Congo African Grey Parrot
- Congo (chimpanzee), name of a chimpanzee who learned to paint
- Congo snake, a genus of aquatic salamander
- Congo, one of many common names for *Agkistrodon piscivorus*, a venomous snake in the eastern United States
- Conger, a genus of marine congrid eels

In music and entertainment

- *Congo*, a 1980 novel by Michael Crichton
- *Congo*, a 1995 film based on Crichton's novel
- *Congo*, a 2001 BBC documentary film
- *Congo The Movie: The Lost City of Zinj*, a 1995 Sega Saturn video game
- *Kongo*, a 1932 film starring Walter Huston, Lupe Velez, and Conrad Nagel
- Kongo, the main character in the *Monkey Magic* (TV series) anime series
- "Congo" (song), a 1995 song by Genesis
- Kongo Jungle, setting of the Donkey Kong video game series.
- Congo Bongo, a 1983 arcade and video game
- The Congos, a Jamaican reggae duo
- Congo theme in Kings Dominion amusement park, Virginia USA, loosely associated with Central Africa
- Soukous (Congo), a genre of music from the Congo states

In other use

- Congo (loa), a spirit in Haitian voodoo mythology
 - The Conference of NGOs (CONGO), a worldwide group of charity and aid organizations
 - Congo, townland in County Fermanagh, Northern Ireland
 - Congo Village, part of the city Diego Martin in Trinidad
 - *The Congo* or *The Congo: A Study of the Negro Race*, a poem by Vachel Lindsay
 - HMS *Congo* (1816), First steamship for the Royal Navy (United Kingdom)
 - Japanese battleship Kongō
 - yawara (Kongo), a martial arts weapon
-


People with the family name

- Cheick Kongo (born 1975), mixed martial arts fighter
- Kongō Masahiro (born 1948), former sumo wrestler
- John Kongos (born 1945), South African musician, leader of the band "Johnny Kongos and the G-Men"
- Kid Congo Powers (born 1960), American singer and guitarist

See also

- Conga (disambiguation)
 - Congo craton, one of the cratons making the African continental crust
 - Congolian forests
 - Congo Peafowl, bird species
 - Congolese
 - *A Daughter of the Congo*, 1930 film by Oscar Micheaux
 - Kakongo, former kingdom
 - *King of the Congo*, 1952 film serial by Columbia Pictures
 - *The King of the Kongo*, 1929 film serial by Mascot Pictures
-

Africa

	
Area	30,221,532 km ² (11,668,598.7 sq mi)
Population	1,000,010,000 ^[1] (2005, 2nd)
Pop. density	30.51/km ² (about 80/sq mi)
Demonym	African
Countries	53 (List of countries)
Dependencies	
Languages	List of languages
Time Zones	UTC-1 to UTC+4
Largest cities	List of cities

Africa is the world's second-largest and second most-populous continent, after Asia. At about 30.2 million km² (11.7 million sq mi) including adjacent islands, it covers 6% of the Earth's total surface area and 20.4% of the total land area.^[2] With a billion people (as of 2009, see table) in 61 territories, it accounts for about 14.8% of the World's human population. The continent is surrounded by the Mediterranean Sea to the north, both the Suez Canal and the Red Sea along the Sinai Peninsula to the northeast, the Indian Ocean to the southeast, and the Atlantic Ocean to the west. Not counting the disputed territory of Western Sahara, there are 53 countries, including Madagascar and various island groups, associated with the continent.

Africa, particularly central eastern Africa, is widely regarded within the scientific community to be the origin of humans and the Hominidae tree (great apes), as evidenced by the discovery of the earliest hominids and their ancestors, as well as later ones that have been dated to around seven million years ago – including *Sahelanthropus tchadensis*, *Australopithecus africanus*, *A. afarensis*, *Homo erectus*, *H. habilis* and *H. ergaster* – with the earliest *Homo sapiens* (human) found in Ethiopia being dated to ca. 200,000 years ago.^[3]

Africa straddles the equator and encompasses numerous climate areas; it is the only continent to stretch from the northern temperate to southern temperate zones.^[4]

Etymology

Afri was the name of several peoples who dwelt in North Africa near Carthage. Their name is usually connected with Phoenician *afar*, "dust", but a 1981 theory^[5] has asserted that it stems from a Berber word *ifri* or *Ifran* meaning "cave", in reference to cave dwellers^[6]. Africa or Ifri or Afer^[6] is name of Banu Ifran from Algeria and Tripolitania (Berber Tribe of Yafran)^[7].

Under Roman rule, Carthage became the capital of Africa Province, which also included the coastal part of modern Libya. The Roman suffix "-ca" denotes "country or land".^[8] The later Muslim kingdom of Ifriqiya, modern-day Tunisia, also preserved a form of the name.

Other etymologies that have been postulated for the ancient name "Africa":

- the 1st century Jewish historian Flavius Josephus (*Ant. 1.15*) asserted that it was named for Ephraim, grandson of Abraham according to Gen. 25:4, whose descendants, he claimed, had invaded Libya.
- Latin word *aprica* ("sunny") mentioned by Isidore of Seville in *Etymologiae* XIV.5.2.
- the Greek word *aphrike*, meaning "without cold." This was proposed by historian Leo Africanus (1488–1554), who suggested the Greek word *phrike* (φρίκη, meaning "cold and horror"), combined with the privative prefix "a-", thus indicating a land free of cold and horror.
- Massey, in 1881, derived an etymology from the Egyptian *af-rui-ka*, "to turn toward the opening of the Ka." The Ka is the energetic double of every person and "opening of the Ka" refers to a womb or birthplace. Africa would be, for the Egyptians, "the birthplace."^[9]

The Irish female name *Aifric* is sometimes anglicised as *Africa*, but the given name is unrelated to the geonym.

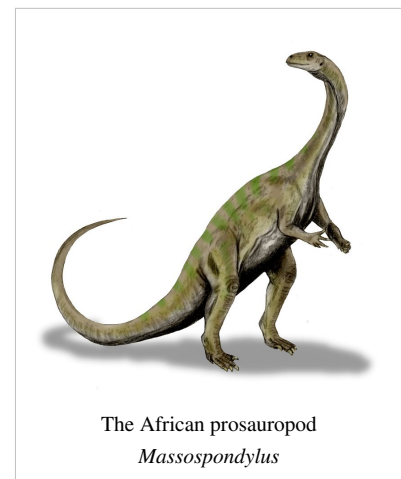
History

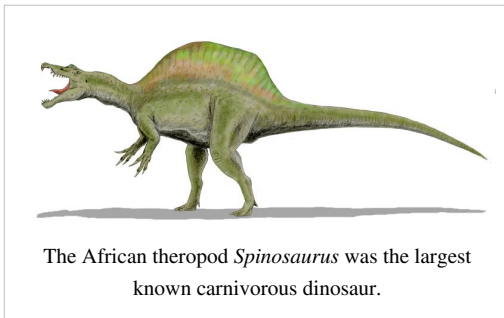
Paleohistory

At the beginning of the Mesozoic Era, Africa was joined with Earth's other continents in Pangaea.^[10] Africa shared the supercontinent's relatively uniform fauna which was dominated by theropods, prosauropods and primitive ornithischians by the close of the Triassic period.^[10] Late Triassic fossils are found through-out Africa, but are more common in the south than north.^[10] The boundary separating the Triassic and Jurassic marks the advent of an extinction event with global impact, although African strata from this time period have not been thoroughly studied.^[10]

Early Jurassic strata are distributed in a similar fashion to Late Triassic beds, with more common outcrops in the south and less common fossil beds which are predominated by tracks to the north.^[10] As the Jurassic proceeded, larger and more iconic groups of dinosaurs like sauropods and ornithomimids proliferated in Africa.^[10] Middle Jurassic strata are neither well represented nor well studied in Africa.^[10] Late Jurassic strata are also poorly represented apart from the spectacular Tendeguru fauna in Tanzania.^[10] The Late Jurassic life of Tendeguru is very similar to that found in western North America's Morrison Formation.^[10]

Midway through the Mesozoic, about 150–160 million years ago, Madagascar separated from Africa, although it remained connected to India and the rest of the Gondwanan landmasses.^[10] Fossils from Madagascar include abelisauroids and titanosaurs.^[10]





Later into the Early Cretaceous epoch, the India-Madagascar landmass separated from the rest of Gondwana.^[10] By the Late Cretaceous, Madagascar and India had permanently split ways and continued until later reaching their modern configurations.^[10]

By contrast to Madagascar, mainland Africa was relatively stable in position through-out the Mesozoic.^[10] Despite the stable position, major changes occurred to its relation to other landmasses as the remains of Pangea continued to break apart.^[10]

By the beginning of the Late Cretaceous epoch South America had split off from Africa, completing the southern half of the Atlantic Ocean.^[10] This event had a profound effect on global climate by altering ocean currents.^[10]

During the Cretaceous, Africa was populated by allosauroids and spinosaurids, including the largest known carnivorous dinosaurs.^[10] Titanosaurs were significant herbivores in its ancient ecosystems.^[10] Cretaceous sites are more common than Jurassic ones, but are often unable to be dated radiometrically making it difficult to know their exact ages.^[10] Paleontologist Louis Jacobs, who spent time doing field work in Malawi, says that African beds are "in need of more field work" and will prove to be a "fertile ground ... for discovery."^[10]

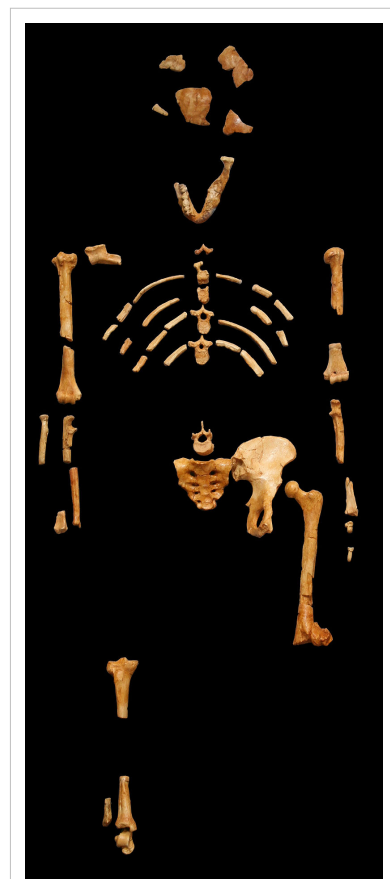
Pre-history

Africa is considered by most paleoanthropologists to be the oldest inhabited territory on Earth, with the human species originating from the continent.^[11] During the middle of the twentieth century, anthropologists discovered many fossils and evidence of human occupation perhaps as early as 7 million years ago. Fossil remains of several species of early apelike humans thought to have evolved into modern man, such as *Australopithecus afarensis* (radiometrically dated to approximately 3.9–3.0 million years BC),^[13] *Paranthropus boisei* (c. 2.3–1.4 million years BC)^[14] and *Homo ergaster* (c. 1.9 million–600,000 years BC) have been discovered.^[2]

Throughout humanity's prehistory, Africa (like all other continents) had no nation states, and was instead inhabited by groups of hunter-gatherers such as the Khoi and San.^{[15] [16] [17]}

At the end of the Ice Ages, estimated to have been around 10,500 BC, the Sahara had again become a green fertile valley, and its African populations returned from the interior and coastal highlands in Sub-Saharan Africa. However, the warming and drying climate meant that by 5000 BC the Sahara region was becoming increasingly dry and hostile. The population trekked out of the Sahara region towards the Nile Valley below the Second Cataract where they made permanent or semi-permanent settlements. A major climatic recession occurred, lessening the heavy and persistent rains in Central and Eastern Africa. Since this time dry conditions have prevailed in Eastern Africa, and increasingly during the last 200 years, in Ethiopia.

The domestication of cattle in Africa preceded agriculture and seems to have existed alongside hunter-gathering cultures. It is speculated that by 6000 BC cattle were already domesticated in North Africa.^[18] In the Sahara-Nile



Lucy, an *Australopithecus afarensis* skeleton discovered on November 24, 1974, in the Awash Valley of Ethiopia's Afar Depression

complex, people domesticated many animals including the pack ass, and a small screw horned goat which was common from Algeria to Nubia. In the year 4000 BC the climate of the Sahara started to become drier at an exceedingly fast pace.^[19] This climate change caused lakes and rivers to shrink significantly and caused increasing desertification. This, in turn, decreased the amount of land conducive to settlements and helped to cause migrations of farming communities to the more tropical climate of West Africa.^[19]

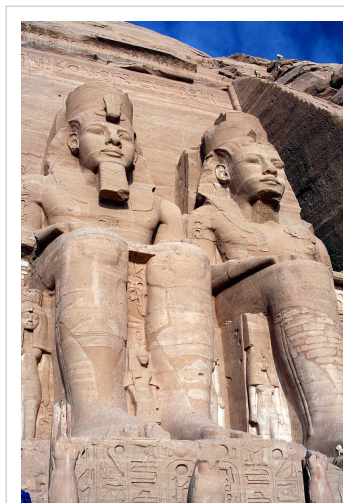
By the first millennium BC ironworking had been introduced in Northern Africa and quickly spread across the Sahara into the northern parts of sub-Saharan Africa^[20] and by 500 BC metalworking began to become commonplace in West Africa. Ironworking was fully established by roughly 500 BC in many areas of East and West Africa, although other regions didn't begin ironworking until the early centuries AD. Copper objects from Egypt, North Africa, Nubia and Ethiopia dating from around 500 BC have been excavated in West Africa, suggesting that trans-saharan trade networks had been established by this date.^[19]

Early civilizations

At about 3300 BC, the historical record opens in Northern Africa with the rise of literacy in the Pharaonic civilisation of Ancient Egypt.^[21] One of the world's earliest and longest-lasting civilizations, the Egyptian state continued, with varying levels of influence over other areas, until 343 BC.^[22] ^[23] Egyptian influence reached deep into modern-day Libya, north to Crete^[24] and Canaan, and south to the kingdoms of Aksum and Nubia. An independent centre of civilisation with trading links to Phoenicia was established on the north-west African coast at Carthage.^[25] ^[26]

European exploration of Africa began with Ancient Greeks and Romans. In 332 BC, Alexander the Great was welcomed as a liberator in Persian-occupied Egypt. He founded Alexandria in Egypt, which would become the prosperous capital of the Ptolemaic dynasty after his death.^[27] Following the conquest of North Africa's Mediterranean coastline by the Roman Empire, the area was integrated economically and culturally into the Roman system. Roman settlement occurred in modern Tunisia and elsewhere along the coast. Christianity spread across these areas from Palestine via Egypt, also passing south, beyond the borders of the Roman world into Nubia and by at least the 6th century into Ethiopia.

In the early 7th century, the newly formed Arabian Islamic Caliphate expanded into Egypt, and then into North Africa. In a short while the local Berber elite had been integrated into Muslim Arab tribes. When the Ummayyad capital Damascus fell in the eighth century, the Islamic center of the Mediterranean shifted from Syria to Qayrawan in North Africa. Islamic North Africa had become diverse, and a hub for mystics, scholars, jurists and philosophers. During the above mentioned period, Islam spread to sub-Saharan Africa, mainly through trade routes and migration.^[28]



Colossal statues of Ramesses II at Abu Simbel, Egypt, date from around 1400 BC.

9th–18th century



9th century bronzes from the Igbo town of Igbo Ukwu, now at the British Museum^[29]

Pre-colonial Africa possessed perhaps as many as 10,000 different states and polities^[30] characterised by many different sorts of political organisation and rule. These included small family groups of hunter-gatherers such as the San people of southern Africa; larger, more structured groups such as the family clan groupings of the Bantu-speaking people of central and southern Africa, heavily structured clan groups in the Horn of Africa, the large Sahelian Kingdoms, and autonomous city-states and kingdoms such as those of the Yoruba and Igbo people (also misspelled as Ibo) in West Africa, and the Swahili coastal trading towns of East Africa.

By the 9th century AD a string of dynastic states, including the earliest Hausa states, stretched across the sub-saharan savannah from the western regions to central Sudan. The most powerful of these states were Ghana, Gao, and the Kanem-Bornu Empire. Ghana declined in the 11th century but was succeeded by the Mali Empire which consolidated much of western Sudan in the 13th century. Kanem accepted Islam in the 11th century.

In the forested regions of the West African coast, independent kingdoms grew up with little influence from the Muslim north. The Kingdom of Nri of the Igbo was established around the 9th century and was one of the first. It is also one of the oldest Kingdom in modern day Nigeria and was ruled by the Eze Nri. The Nri kingdom is famous for its elaborate bronzes, found at the town of Igbo Ukwu. The bronzes have been dated from as far back as the 9th century.^[31]

The Ife, historically the first of these Yoruba city-states or kingdoms, established government under a priestly oba, (oba means 'king' or 'ruler' in the Yoruba language), called the *Ooni of Ife*. Ife was noted as a major religious and cultural centre in Africa, and for its unique naturalistic tradition of bronze sculpture. The Ife model of government was adapted at Oyo, where its obas or kings, called the *Alaafins of Oyo* once controlled a large number of other Yoruba and non Yoruba city states and Kingdoms, the *Fon Kingdom of Dahomey* was one of the non Yoruba domains under Oyo control.

The Almoravids, was a Berber dynasty from the Sahara that spread over a wide area of northwestern Africa and the Iberian peninsula during the 11th century.^[32] The Banu Hilal and Banu Ma'qil were a collection of Arab Bedouin tribes from the Arabian peninsula who migrated westwards via Egypt between the 11th and 13th centuries. Their migration resulted in the fusion of the Arabs and Berbers, where the locals were Arabized, and Arab culture absorbed elements of the local culture, under the unifying framework of Islam.^[33]

Following the breakup of Mali a local leader named Sonni Ali (1464–1492) founded the Songhai Empire in the region of middle Niger and the western Sudan and took control of the trans-Saharan trade. Sonni Ali seized Timbuktu in 1468 and Jenne in 1473, building his regime on trade revenues and the cooperation of Muslim merchants. His successor Askia Mohammad I (1493–1528) made Islam the official religion, built mosques, and brought Muslim scholars, including al-Maghili (d.1504), the founder of an important tradition of Sudanic African Muslim scholarship, to Gao.^[34] By the



Ruins of Great Zimbabwe (11th-15th c.)

11th century some Hausa states – such as Kano, Jigawa, Katsina, and Gobir – had developed into walled towns engaging in trade, servicing caravans, and the manufacture of goods. Until the 15th century these small states were on the periphery of the major Sudanic empires of the era, paying tribute to Songhai to the west and Kanem-Borno to the east.

Height of slave trade

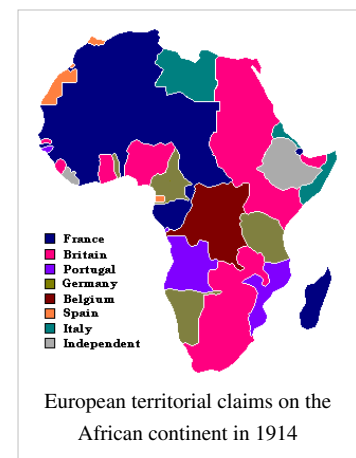
Slavery has been practiced in Africa, as well as other places, throughout recorded history.^[35] ^[36] Between the seventh and twentieth centuries, Arab slave trade (also known as slavery in the East) took 18 million slaves from Africa via trans-Saharan and Indian Ocean routes. Between the fifteenth and the nineteenth centuries, the Atlantic slave trade took 7–12 million slaves to the New World.^[37] ^[38] ^[39]

In West Africa, the decline of the Atlantic slave trade in the 1820s caused dramatic economic shifts in local polities. The gradual decline of slave-trading, prompted by a lack of demand for slaves in the New World, increasing anti-slavery legislation in Europe and America, and the British Royal Navy's increasing presence off the West African coast, obliged African states to adopt new economies. Between 1808 and 1860, the British West Africa Squadron seized approximately 1,600 slave ships and freed 150,000 Africans who were aboard.^[40] Action was also taken against African leaders who refused to agree to British treaties to outlaw the trade, for example against "the usurping King of Lagos", deposed in 1851. Anti-slavery treaties were signed with over 50 African rulers.^[41] The largest powers of West Africa: the Asante Confederacy, the Kingdom of Dahomey, and the Oyo Empire, adopted different ways of adapting to the shift. Asante and Dahomey concentrated on the development of "legitimate commerce" in the form of palm oil, cocoa, timber and gold, forming the bedrock of West Africa's modern export trade. The Oyo Empire, unable to adapt, collapsed into civil wars.^[42]

Colonialism and the "Scramble for Africa"

In the late nineteenth century, the European imperial powers engaged in a major territorial scramble and occupied most of the continent, creating many colonial nation states, and leaving only two independent nations: Liberia, an independent state partly settled by African Americans; and Orthodox Christian Ethiopia (known to Europeans as "Abyssinia"). Colonial rule by Europeans would continue until after the conclusion of World War II, when all colonial states gradually obtained formal independence.

Independence movements in Africa gained momentum following World War II, which left the major European powers weakened. In 1951, Libya, a former Italian colony, gained independence. In 1956, Tunisia and Morocco won their independence from France. Ghana followed suit the next year, becoming the first of the sub-Saharan colonies to be freed. Most of the rest of the continent became independent over the next decade, most often through relatively peaceful means, though in some countries, notably Algeria, it came only after a violent struggle. Though South Africa was one of the first African countries to gain independence, it remained under the rule of its white settler population, in a policy known as Apartheid, until 1994.



Post-colonial Africa

Today, Africa contains 53 independent and sovereign countries, most of which still have the borders drawn during the era of European colonialism. Since colonialism, African states have frequently been hampered by instability, corruption, violence, and authoritarianism. The vast majority of African nations are republics that operate under some form of the presidential system of rule. However, few of them have been able to sustain democratic governments, and many have instead cycled through a series of coups, producing military dictatorships. A number of

Africa's post-colonial political leaders were military generals who were poorly educated and ignorant on matters of governance. Great instability, however, was mainly the result of marginalization of other ethnic groups and graft under these leaders. For political gain, many leaders fanned ethnic conflicts that had been exacerbated, or even created, by colonial rule. In many countries, the military was perceived as being the only group that could effectively maintain order, and it ruled many nations in Africa during the 1970s and early 1980s. During the period from the early 1960s to the late 1980s, Africa had more than 70 coups and 13 presidential assassinations. Border and territorial disputes were also common, with the European-imposed borders of many nations being widely contested through armed conflicts.

Cold War conflicts between the United States and the Soviet Union, as well as the policies of the International Monetary Fund, also played a role in instability. When a country became independent for the first time, it was often expected to align with one of the two superpowers. Many countries in Northern Africa received Soviet military aid, while many in Central and Southern Africa were supported by the United States, France or both. The 1970s saw an escalation, as newly independent Angola and Mozambique aligned themselves with the Soviet Union, and the West and South Africa sought to contain Soviet influence by funding insurgency movements. There was a major famine in Ethiopia, when hundreds of thousands of people starved. Some claimed that Marxist/Soviet polices made the situation worse.^{[43] [44] [45]}

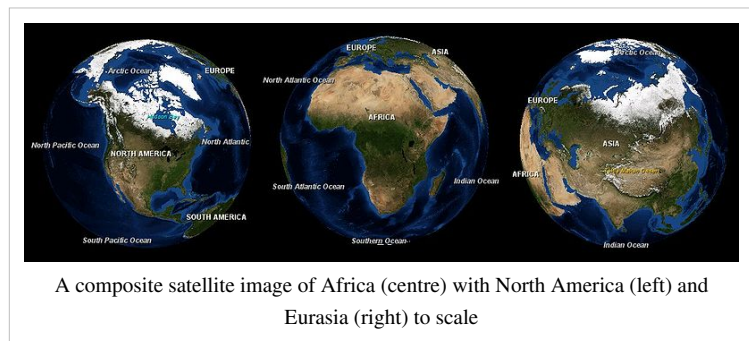
The most devastating military conflict in modern independent Africa has been the Second Congo War. By 2008, this conflict and its aftermath had killed 5.4 million people. Since 2003 there has been an ongoing conflict in Darfur which has become a humanitarian disaster. AIDS has also been a prevalent issue in post-colonial Africa.

Geography

Africa is the largest of the three great southward projections from the largest landmass of the Earth. Separated from Europe by the Mediterranean Sea, it is joined to Asia at its northeast extremity by the Isthmus of Suez (transected by the Suez Canal), 163 km (101 miles) wide.^[46] (Geopolitically, Egypt's Sinai Peninsula east of the Suez Canal is often considered part of Africa, as well.)^[47] From the most northerly

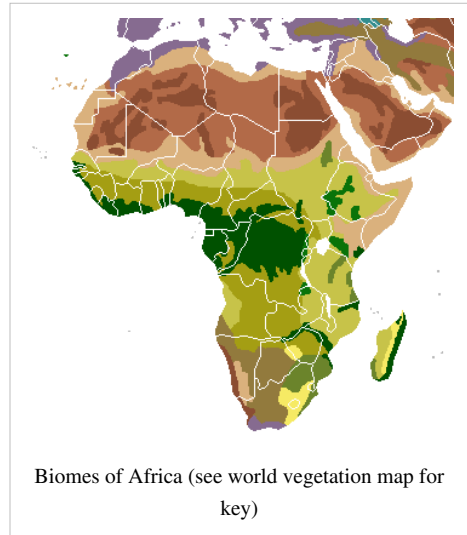
point, Ras ben Sakka in Tunisia (37°21' N), to the most southerly point, Cape Agulhas in South Africa (34°51'15" S), is a distance of approximately 8,000 km (5,000 miles);^[48] from Cape Verde, 17°33'22" W, the westernmost point, to Ras Hafun in Somalia, 51°27'52" E, the most easterly projection, is a distance of approximately 7,400 km (4,600 miles).^[49] The coastline is 26,000 km (16,100 miles) long, and the absence of deep indentations of the shore is illustrated by the fact that Europe, which covers only 10,400,000 km² (4,010,000 square miles) – about a third of the surface of Africa – has a coastline of 32,000 km (19,800 miles).^[49]

Africa's largest country is Sudan, and its smallest country is the Seychelles, an archipelago off the east coast.^[50] The smallest nation on the continental mainland is The Gambia.



According to the ancient Romans, Africa lay to the west of Egypt, while "Asia" was used to refer to Anatolia and lands to the east. A definite line was drawn between the two continents by the geographer Ptolemy (85–165 AD), indicating Alexandria along the Prime Meridian and making the isthmus of Suez and the Red Sea the boundary between Asia and Africa. As Europeans came to understand the real extent of the continent, the idea of *Africa* expanded with their knowledge.

Geologically, Africa includes the Arabian Peninsula; the Zagros Mountains of Iran and the Anatolian Plateau of Turkey mark where the African Plate collided with Eurasia. The Afrotropic ecozone and the Saharo-Arabian desert to its north unite the region biogeographically, and the Afro-Asiatic language family unites the north linguistically.

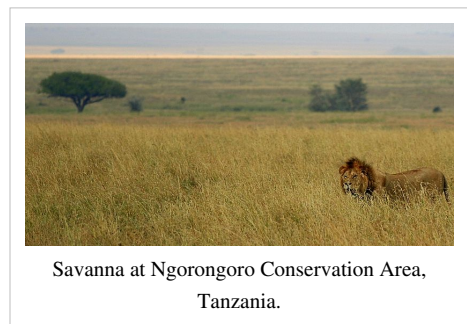


Climate

The climate of Africa ranges from tropical to subarctic on its highest peaks. Its northern half is primarily desert or arid, while its central and southern areas contain both savanna plains and very dense jungle (rainforest) regions. In between, there is a convergence where vegetation patterns such as sahel, and steppe dominate.

Fauna

Africa boasts perhaps the world's largest combination of density and "range of freedom" of wild animal populations and diversity, with wild populations of large carnivores (such as lions, hyenas, and cheetahs) and herbivores (such as buffalo, deer, elephants, camels, and giraffes) ranging freely on primarily open non-private plains. It is also home to a variety of jungle creatures (including snakes and → primates) and aquatic life (including crocodiles and amphibians).



Ecology

Africa is suffering deforestation at twice the world rate, according to the United Nations Environment Programme (UNEP).^[51] Some sources claim that deforestation has already wiped out roughly 90% of West Africa's original forests.^[52] Since the arrival of humans 2000 years ago, Madagascar has lost more than 90% of its original forest.^[53] About 65% of Africa's agricultural land suffers from soil degradation.^[54]

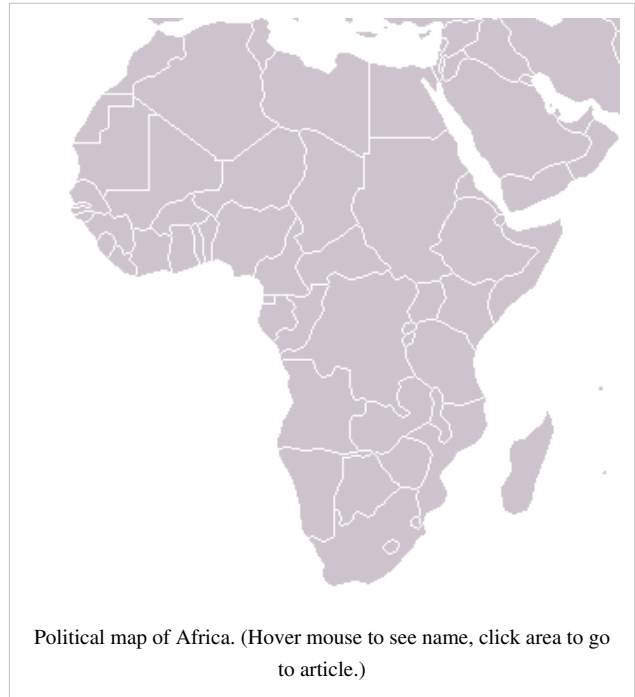
Politics

The African Union (AU) is a federation consisting of all of Africa's states except Morocco. The union was formed, with Addis Ababa as its headquarters, on 26 June 2001. In July 2004, the African Union's Pan-African Parliament (PAP) was relocated to Midrand, in South Africa, but the African Commission on Human and Peoples' Rights remained in Addis Ababa. There is a policy in effect to decentralise the African Federation's institutions so that they are shared by all the states.

The African Union, not to be confused with the AU Commission, is formed by an Act of Union, which aims to transform the African Economic Community, a federated commonwealth, into a state under established international conventions. The African Union has a parliamentary government, known as the African Union Government, consisting of legislative, judicial and executive organs. It is led by the African Union President and Head of State, who is also the President of the Pan African Parliament. A person becomes AU President by being elected to the PAP, and subsequently gaining majority support in the PAP.

The powers and authority of the President of the African Parliament derive from the Union Act, and the Protocol of the Pan African Parliament, as well as the inheritance of presidential authority stipulated by African treaties and by international treaties, including those subordinating the Secretary General of the OAU Secretariat (AU Commission) to the PAP. The government of the AU consists of all-union (federal), regional, state, and municipal authorities, as well as hundreds of institutions, that together manage the day-to-day affairs of the institution.

There are clear signs of increased networking among African organisations and states. In the civil war in the Democratic Republic of the Congo (former Zaire), rather than rich, non-African countries intervening, neighbouring African countries became involved (see also Second Congo War). Since the conflict began in 1998, the estimated death toll has reached 5 million. Political associations such as the African Union offer hope for greater co-operation and peace between the continent's many countries. Extensive human rights abuses still occur in several parts of Africa, often under the oversight of the state. Most of such violations occur for political reasons, often as a side effect of civil war. Countries where major human rights violations have been reported in recent times include the Democratic Republic of the Congo, Sierra Leone, Liberia, Sudan, Zimbabwe, and Côte d'Ivoire.

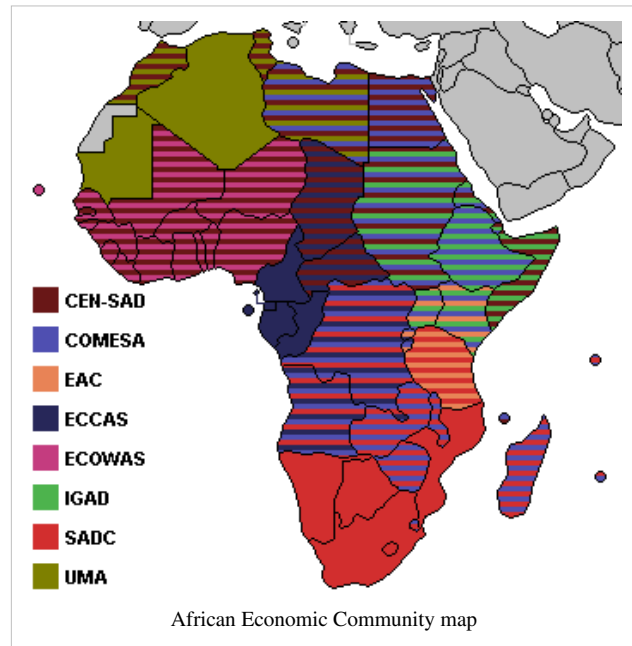


Economy

Although it has abundant natural resources, Africa remains the world's poorest and most underdeveloped continent, due to a variety of causes that may include the spread of deadly diseases and viruses (notably HIV/AIDS and malaria), corrupt governments that have often committed serious human rights violations, failed central planning, high levels of illiteracy, lack of access to foreign capital, and frequent tribal and military conflict (ranging from guerrilla warfare to genocide).^[55] According to the United Nations' Human Development Report in 2003, the bottom 25 ranked nations (151st to 175th) were all African.^[56]

Poverty, illiteracy, malnutrition and inadequate water supply and sanitation, as well as poor health, affect a large proportion of the people who reside in the African continent. In August 2008, the World Bank^[57] announced revised global poverty estimates based on a new international poverty line of \$1.25 per day (versus the previous measure of \$1.00). 80.5% of the Sub-Saharan Africa population was living on less than \$2.50 (PPP) a day in 2005, compared with 85.7% for India.^[58] The new figures confirm that sub-Saharan Africa has been the least successful region of the world in reducing poverty (\$1.25 per day); some 50% of the population living in poverty in 1981 (200 million people), a figure that rose to 58% in 1996 before dropping to 50% in 2005 (380 million people). The average poor person in sub-Saharan Africa is estimated to live on only 70 cents per day, and was poorer in 2003 than he or she was in 1973^[59] indicating increasing poverty in some areas. Some of it is attributed to unsuccessful economic liberalization programs spearheaded by foreign companies and governments, but other studies and reports have cited bad domestic government policies more than external factors.^{[60] [61] [62]}

From 1995 to 2005, Africa's rate of economic growth increased, averaging 5% in 2005. Some countries experienced still higher growth rates, notably Angola, Sudan and Equatorial Guinea, all three of which had recently begun extracting their petroleum reserves or had expanded their oil extraction capacity. The continent has 90% of the world's cobalt, 90% of its platinum, 50% of its gold, 98% of its chromium, 70% of its tantalite,^[63] 64% of its manganese and one-third of its uranium.^[64] The DRC has 70% of the world's coltan, and most mobile phones in the world have coltan in them. The Democratic Republic of the Congo also has more than 30% of the world's diamond reserves.^[65] Guinea is the world's largest exporter of bauxite.^[66] In recent years, the People's Republic of China has built increasingly stronger ties with African nations. In 2007, Chinese companies invested a total of US\$1 billion in Africa.^[67]



Demographics



Tuareg man from Algeria

Africa's population has rapidly increased over the last 40 years, and consequently it is relatively young. In some African states half or more of the population is under 25 years of age.^[68] African population grew from 221 million in 1950 to 1 billion in 2009.^[69] ^[70]

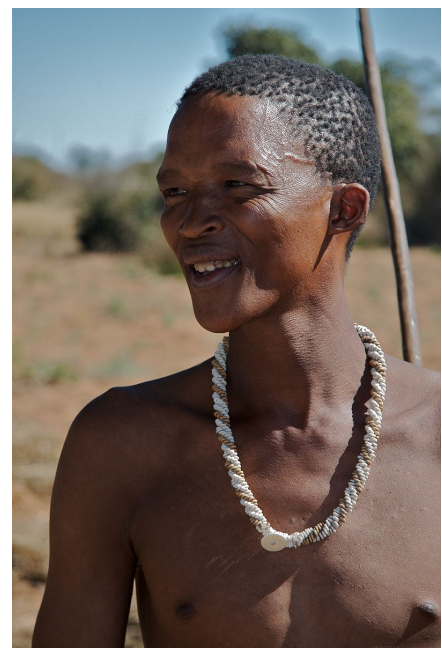
Speakers of Bantu languages (part of the Niger-Congo family) are the majority in southern, central and East Africa proper. But there are also several Nilotic groups in East Africa, and a few remaining indigenous Khoisan ('San' or 'Bushmen') and Pygmy peoples in southern and central Africa, respectively. Bantu-speaking Africans also predominate in Gabon and Equatorial Guinea, and are found in parts of southern Cameroon. In the Kalahari Desert of Southern Africa, the distinct people known as the Bushmen (also "San", closely related to, but distinct from "Hottentots") have long been present. The San are physically distinct from other Africans and are the indigenous people of southern Africa. Pygmies are the pre-Bantu indigenous peoples of

central Africa.^[71]

The peoples of North Africa comprise two main groups; Berber and Arabic-speaking peoples in the west, and Egyptians in the east. The Arabs who arrived in the seventh century introduced the Arabic language and Islam to North Africa. The Semitic Phoenicians, the Iranian Alans, the European Greeks, Romans and Vandals settled in North Africa as well. Berbers still make up the majority in Morocco, while they are a significant minority within Algeria. They are also present in Tunisia and Libya.^[72] The Tuareg and other often-nomadic peoples are the principal inhabitants of the Saharan interior of North Africa. Nubians are a Nilo-Saharan-speaking group (though many also speak Arabic), who developed an ancient civilisation in northeast Africa.

Some Ethiopian and Eritrean groups (like the Amhara and Tigrayans, collectively known as "Habesha") speak Semitic languages. The Oromo and Somali peoples speak Cushitic languages, but some Somali clans trace their founding to legendary Arab founders. Sudan and Mauritania are divided between a mostly Arabized north and a native African south (although the "Arabs" of Sudan clearly have a predominantly native African ancestry themselves). Some areas of East Africa, particularly the island of Zanzibar and the Kenyan island of Lamu, received Arab Muslim and Southwest Asian settlers and merchants throughout the Middle Ages and in antiquity.^[73]

Prior to the decolonisation movements of the post-World War II era, Whites were represented in every part of Africa.^[74] Decolonisation during the 1960s and 1970s often resulted in the mass emigration of European-descended settlers out of Africa – especially from Algeria (*pieds-noirs*),^[75] Kenya, Congo,^[76] Angola,^[77] Mozambique and Rhodesia. Nevertheless, White Africans remain an important minority in many African states. The African country with the largest White African population is South Africa.^[78] The Afrikaners, the Anglo-Africans and the Coloureds are the largest European-descended groups in Africa today.



San man from Botswana



Woman from Benin

European colonisation also brought sizeable groups of Asians, particularly people from the Indian subcontinent, to British colonies. Large Indian communities are found in South Africa, and smaller ones are present in Kenya, Tanzania, and some other southern and East African countries. The large Indian community in Uganda was expelled by the dictator Idi Amin in 1972, though many have since returned. The islands in the Indian Ocean are also populated primarily by people of Asian origin, often mixed with Africans and Europeans. The Malagasy people of Madagascar are an Austronesian people, but those along the coast are generally mixed with Bantu, Arab, Indian and

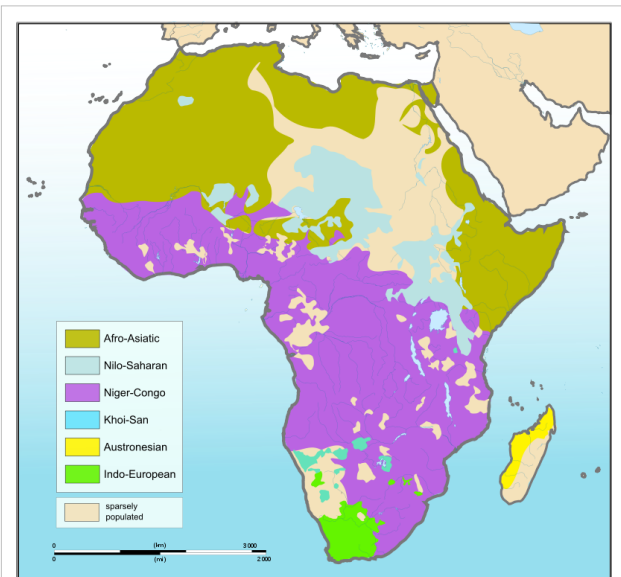
European origins. Malay and Indian ancestries are also important components in the group of people known in South Africa as Cape Coloureds (people with origins in two or more races and continents). During the 20th century, small but economically important communities of Lebanese and Chinese^[67] have also developed in the larger coastal cities of West and East Africa, respectively.^[79]

Languages

By most estimates, well over a thousand languages (UNESCO has estimated around two thousand) are spoken in Africa.^[80] Most are of African origin, though some are of European or Asian origin. Africa is the most multilingual continent in the world, and it is not rare for individuals to fluently speak not only multiple African languages, but one or more European ones as well. There are four major language families indigenous to Africa.

- The *Afro-Asiatic* languages are a language family of about 240 languages and 285 million people widespread throughout the Horn of Africa, North Africa, the Sahel, and Southwest Asia.
- The *Nilo-Saharan* language family consists of more than a hundred languages spoken by 30 million people. Nilo-Saharan languages are spoken by Nilotic tribes in Chad, Ethiopia, Kenya, Sudan, Uganda, and northern Tanzania.
- The *Niger-Congo* language family covers much of Sub-Saharan Africa and is probably the largest language family in the world in terms of different languages.
- The *Khoisan* languages number about fifty and are spoken in Southern Africa by approximately 120,000 people. Many of the Khoisan languages are endangered. The Khoi and San peoples are considered the original inhabitants of this part of Africa.

Following the end of colonialism, nearly all African countries adopted official languages that originated outside the continent, although several countries also granted legal recognition to indigenous languages (such as Swahili, Yoruba, Igbo and Hausa). In numerous countries, English and French (*see African French*) are used for communication in the public sphere such as government, commerce, education and the media. Arabic, Portuguese, Afrikaans and Malagasy are examples of languages that trace their origin to outside of Africa, and that are used by millions of Africans today, both in the public and private spheres.



Map showing the distribution of the various language families of Africa.

Culture



Kikuyu woman in Kenya

Modern African culture is characterised by conflicted responses to Arab nationalism and European imperialism. Increasingly, beginning in the late 1990s, Africans have been reasserting their identity. In North Africa, especially because of the rejection of the label Arab or European, there is now an upsurge of demands for special protection of indigenous Berber languages and culture in Morocco, Egypt, Algeria and Tunisia. The re-emergence of Pan-Africanism since the fall of apartheid has heightened calls for a renewed sense of African identity. In South Africa, intellectuals from settler communities of European descent increasingly identify as African for cultural, rather than geographical or racial, reasons. Famously, some have undergone ritual ceremonies to become members of the Zulu or other communities.

Many aspects of traditional African cultures have become less practiced in recent years as a result of years of neglect and suppression by colonial and post-colonial regimes. There is now a resurgence in the attempts to rediscover and revalorise African traditional cultures, under such movements as the African Renaissance, led by Thabo

Mbeki, Afrocentrism, led by a group of scholars, including Molefi Asante, as well as the increasing recognition of traditional spiritualism through decriminalization of Vodou and other forms of spirituality. In recent years, traditional African culture has become synonymous with rural poverty and subsistence farming.

The vast majority of the scholarship on Africa was extraneous and catered to the demand for exotic and outlandish representations of Africa. The enforcement of government decrees and policies tended to produce effects that confirmed the prejudices of the European colonialists.

Visual art and architecture

African art and architecture reflect the diversity of African cultures. The oldest existing examples of art from Africa are 82,000-year-old beads made from *Nassarius* shells that were found in the Aterian levels at Grotte des Pigeons, Taforalt, Morocco. The Great Pyramid of Giza in Egypt was the world's tallest structure for 4,000 years, until the completion of Lincoln Cathedral around the year 1300. The stone ruins of Great Zimbabwe are also noteworthy for their architecture, and the complexity of monolithic churches at Lalibela, Ethiopia, of which the Church of St. George is representative.



The Great Mosque of Djenné is built in an architectural style prevalent in the interior regions of West Africa.

Music and dance

Egypt has long been a cultural focus of the Arab world, while remembrance of the rhythms of sub-Saharan Africa, in particular West Africa, was transmitted through the Atlantic slave trade to modern samba, blues, jazz, reggae, rap, and rock and roll. The 1950s through the 1970s saw a conglomeration of these various styles with the popularization of Afrobeat and Highlife music. Modern music of the continent includes the highly complex choral singing of southern Africa and the dance rhythms of the musical genre of soukous, dominated by the music of the Democratic Republic of Congo. Indigenous musical and dance traditions of Africa are maintained by oral traditions, and they are distinct from the music and dance styles of North Africa and Southern Africa. Arab influences are visible in North African music and dance and, in Southern Africa, Western influences are apparent due to colonisation.



A young man playing the k'ra, a traditional instrument of Ethiopia

Sports

Fifty-three African countries have football (soccer) teams in the Confederation of African Football, while Cameroon, Nigeria, Senegal, and Ghana have advanced to the knockout stage of recent FIFA World Cups. South Africa will host the 2010 World Cup tournament, and will be the first African country to do so.

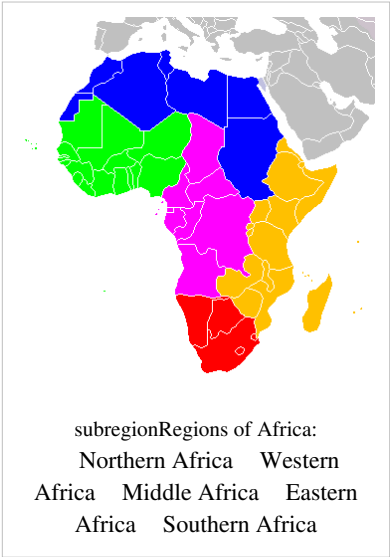
Cricket is popular in some African nations. South Africa and Zimbabwe have Test status, while Kenya is the leading non-test team in One-Day International cricket and has attained permanent One-Day International status. The three countries jointly hosted the 2003 Cricket World Cup. Namibia is the other African country to have played in a World Cup. Morocco in northern Africa has also hosted the 2002 Morocco Cup, but the national team has never qualified for a major tournament.

Religion





















Africans profess a wide variety of religious beliefs^[81] and statistics on religious affiliation are difficult to come by since they are too sensitive a topic for governments with mixed populations.^[82] According to the World Book Encyclopedia, Islam is the largest religion in Africa, followed by Christianity. According to Encyclopedia Britannica, 45% of the population are Muslims, 40% are Christians and less than 15% are non-religious or follow African religions. A small number of Africans are Hindu, Baha'i, or have beliefs from the Judaic tradition. Examples of African Jews are the Beta Israel, Lemba peoples and the Abayudaya of Eastern Uganda.

Territories and regions














The countries in this table are categorised according to the scheme for geographic subregions used by the United Nations, and data included are per sources in cross-referenced articles. Where they differ, provisos are clearly indicated.





Name of region ^[83] and territory, with flag	Area (km ²)	Population (2009 est) except where noted	Density (per km ²)	Capital
Eastern Africa:	6,384,904	316,053,651	49.5	
 Burundi	27,830	8,988,091 ^[84]	322.9	Bujumbura
 Comoros	2,170	752,438 ^[84]	346.7	Moroni
 Djibouti	23,000	516,055 ^[84]	22.4	Djibouti
 Eritrea	121,320	5,647,168 ^[84]	46.5	Asmara
 Ethiopia	1,127,127	85,237,338 ^[84]	75.6	Addis Ababa
 Kenya	582,650	39,002,772 ^[84]	66.0	Nairobi
 Madagascar	587,040	20,653,556 ^[84]	35.1	Antananarivo
 Malawi	118,480	14,268,711 ^[84]	120.4	Lilongwe
 Mauritius	2,040	1,284,264 ^[84]	629.5	Port Louis
 Mayotte (France)	374	223,765 ^[84]	489.7	Mamoudzou
 Mozambique	801,590	21,669,278 ^[84]	27.0	Maputo
 Réunion (France)	2,512	743,981(2002)	296.2	Saint-Denis
 → Rwanda	26,338	10,473,282 ^[84]	397.6	Kigali
 Seychelles	455	87,476 ^[84]	192.2	Victoria
 Somalia	637,657	9,832,017 ^[84]	15.4	Mogadishu
 Tanzania	945,087	41,048,532 ^[84]	43.3	Dodoma
 Uganda	236,040	32,369,558 ^[84]	137.1	Kampala
 Zambia	752,614	11,862,740 ^[84]	15.7	Lusaka
 Zimbabwe	390,580	11,392,629 ^[84]	29.1	Harare
Middle Africa:	6,613,253	121,585,754	18.4	
 Angola	1,246,700	12,799,293 ^[84]	10.3	Luanda

 Cameroon	475,440	18,879,301 ^[84]	39.7	Yaoundé
 Central African Republic	622,984	4,511,488 ^[84]	7.2	Bangui
 Chad	1,284,000	10,329,208 ^[84]	8.0	N'Djamena
 Congo	342,000	4,012,809 ^[84]	11.7	Brazzaville
 Democratic Republic of the Congo	2,345,410	68,692,542 ^[84]	29.2	Kinshasa
 Equatorial Guinea	28,051	633,441 ^[84]	22.6	Malabo
 Gabon	267,667	1,514,993 ^[84]	5.6	Libreville
 São Tomé and Príncipe	1,001	212,679 ^[84]	212.4	São Tomé
Northern Africa:	8,533,021	211,087,622	24.7	
 Algeria	2,381,740	34,178,188 ^[84]	14.3	Algiers
 Egypt ^[85]	1,001,450	83,082,869 ^[84] total, Asia 1.4m	82.9	Cairo
 Libya	1,759,540	6,310,434 ^[84]	3.6	Tripoli
 Morocco	446,550	34,859,364 ^[84]	78.0	Rabat
 Sudan	2,505,810	41,087,825 ^[84]	16.4	Khartoum
 Tunisia	163,610	10,486,339 ^[84]	64.1	Tunis
 Western Sahara ^[86]	266,000	405,210 ^[84]	1.5	El Aaiún
<i>Spanish and Portuguese territories in Northern Africa:</i>				
 Canary Islands (Spain) ^[87]	7,492	1,694,477(2001)	226.2	Las Palmas de Gran Canaria, Santa Cruz de Tenerife
 Ceuta (Spain) ^[88]	20	71,505(2001)	3,575.2	—
 Madeira Islands (Portugal) ^[89]	797	245,000(2001)	307.4	Funchal
 Melilla (Spain) ^[90]	12	66,411(2001)	5,534.2	—
Southern Africa:	2,693,418	56,406,762	20.9	
 Botswana	600,370	1,990,876 ^[84]	3.3	Gaborone
 Lesotho	30,355	2,130,819 ^[84]	70.2	Maseru
 Namibia	825,418	2,108,665 ^[84]	2.6	Windhoek
 South Africa	1,219,912	49,052,489 ^[84]	40.2	Bloemfontein, Cape Town, Pretoria ^[91]
 Swaziland	17,363	1,123,913 ^[84]	64.7	Mbabane
Western Africa:	6,144,013	296,186,492	48.2	
 Benin	112,620	8,791,832 ^[84]	78.0	Porto-Novo
 Burkina Faso	274,200	15,746,232 ^[84]	57.4	Ouagadougou
 Cape Verde	4,033	429,474 ^[84]	107.3	Praia
 Côte d'Ivoire	322,460	20,617,068 ^[84]	63.9	Abidjan, ^[92] Yamoussoukro

 Gambia	11,300	1,782,893 ^[84]	157.7	Banjul
 Ghana	239,460	23,832,495 ^[84]	99.5	Accra
 Guinea	245,857	10,057,975 ^[84]	40.9	Conakry
 Guinea-Bissau	36,120	1,533,964 ^[84]	42.5	Bissau
 Liberia	111,370	3,441,790 ^[84]	30.9	Monrovia
 Mali	1,240,000	12,666,987 ^[84]	10.2	Bamako
 Mauritania	1,030,700	3,129,486 ^[84]	3.0	Nouakchott
 Niger	1,267,000	15,306,252 ^[84]	12.1	Niamey
 Nigeria	923,768	149,229,090 ^[84]	161.5	Abuja
 Saint Helena (UK)	410	7,637 ^[84]	14.4	Jamestown
 Senegal	196,190	13,711,597 ^[84]	69.9	Dakar
 Sierra Leone	71,740	6,440,053 ^[84]	89.9	Freetown
 Togo	56,785	6,019,877 ^[84]	106.0	Lomé
Africa Total	30,368,609	1,001,320,281	33.0	

See also

- List of African countries by population
- List of cities in Africa
- Urbanization in Africa
- List of topics related to Africa
- Highest mountain peaks of Africa

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History

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